



ARCUS

**BASIC ASSESSMENT FOR THE PROPOSED ELECTRICAL
GRID CONNECTION AND ASSOCIATED
INFRASTRUCTURE FOR THE SAN KRAAL SPLIT 1,
HARTEBEESTHOEK EAST, PHEZUKOMOYA SPLIT 1, AND
HARTEBEESTHOEK WEST WIND ENERGY FACILITIES,
EASTERN AND NORTHERN CAPE PROVINCES**

FOR PUBLIC COMMENT

On behalf of

HARTEBEESTHOEK WIND POWER (PTY) LTD

SEPTEMBER 2019

DEA REFERENCE NUMBER: To be allocated



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Title: Basic Assessment for the Proposed Electrical Grid Connection and Associated Infrastructure for the San Kraal Split 1, Hartebeesthoek East, Phezukomoya Split 1 and the Hartebeesthoek West Wind Energy Facilities, Eastern and Northern Cape Provinces

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Report Status: Basic Assessment Report for public comment

EXECUTIVE SUMMARY

Background

San Kraal Wind Power (Pty) Ltd and Phezukomoya Wind Power (Pty) Ltd, were granted Environmental Authorisation (EA) by the Department of Environmental Affairs (DEA) in June 2018. The EA was granted for the construction of Wind Energy Facilities (WEFs), grid connections and associated infrastructure, referred to as San Kraal WEF and Phezukomoya WEF in this Basic Assessment (BA) Report. Through a separate EIA process, San Kraal Wind Power and Phezukomoya Wind Power submitted an amendment application to the DEA. The amendment is to split the two authorised WEFs into four small WEFs. The authorised San Kraal WEF will be split into San Kraal Split 1 and Hartebeesthoek East WEFs, and Phezukomoya will be split into Phezukomoya Split 1 and Hartebeesthoek West WEFs.

This basic assessment application is for the authorisation of a proposed grid connection and associated infrastructure, which is required to transfer electricity from the proposed amendment of the San Kraal WEF and Phezukomoya WEF, to the national grid.

Introduction

Arcus Consultancy Services South Africa (Pty) Ltd ('Arcus') was appointed by Hartebeesthoek Wind Power (Pty) Ltd to act as the independent environmental impact assessment practitioner (EAP) to conduct the Basic Assessment (BA) process, as required by the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), as amended. The BA application process is required for the proposed development of the proposed establishment of 132 kV overhead power lines, on-site switching stations, a proposed expansion to a substation, the development of a collector substation, and associated infrastructure.

Hartebeesthoek Wind Power (Pty) Ltd, is applying for authorisation for all electrical grid connection and associated infrastructure ('Grid Infrastructure'). Furthermore, it is anticipated that the electrical component would be transferred to Eskom once construction is complete.

Site Location and Proposed Development Description

The proposed development is located approximately 10 km south of the town of Noupoort in the Umsobomvu Local Municipality (ULM) which forms part of the Pixley ka Seme District in the Northern Cape Province. A portion of the proposed development site falls within the Inxuba Yethemba Local Municipality, in the Chris Hani District of the Eastern Cape Province. The town of Middelburg and Colesberg are located approximately 25 km and 60 km to the south and north-east of the site respectively.

The following components and infrastructure require environmental authorisation:

- The proposed establishment of a 132 kV overhead power line (OHL) (HBH Corridor), which was not assessed as part of the original San Kraal WEF and Phezukomoya WEF. The HBH Corridor will transfer electricity from the authorised San Kraal substation to the proposed SK-PH collector substation or directly to the proposed Eskom Hydra D substation;
- A new proposed SK-PH collector substation which will be located within an approved corridor (i.e. of the authorised Phezukomoya WEF). This substation will collect electricity, of all the proposed WEFs, which will be transferred via a single 132 kV line to the proposed Eskom Hydra D substation;
- A proposed expansion to the authorised San Kraal substation, to facilitate the power generated by the proposed projects;
- San Kraal Split 1 132 kV proposed step-up substation, which will be located approximately 2.0 km NE of the approved San Kraal substation;
- Hartebeesthoek (HBH) East on-site substation, located approximately 2.3 km SW of the San Kraal substation;

- Phezukomoya Split 1 substation, located to the east of the approved Phezukomoya substation;
- A slight move of the authorised Phezukomoya switching station, located approximately 2.5 km SE of the San Kraal substation for the proposed Hartebeesthoek (HBH) West WEF;
- A new temporary batching plant 2 for the Phezukomoya Split 1 WEF;
- New access points, namely A and B which will provide access to the proposed WEFs and Access Point C which will be used for grid access once the line is built; and
- The proposed establishment of up to eight 132 kV overhead power lines (OHL) dependent on which WEF project phase goes ahead first, and the best possible evacuation on figuration (located within the approved Phezukomoya and San Kraal WEF sites). The OHLs proposed are required to transfer the electricity generated by the new proposed WEFs on-site substations to the authorised Phezukomoya and/or San Kraal substation.

Specialist studies have assessed the WEFs separately from the Grid Connection that is assessed herein.

Environmental Legislative Requirements

The EIA Regulations 2014 as amended provide for the control of certain Listed Activities. These activities are listed in Government Notice No. R327 (Listing Notice 1 – Basic Assessment), R325 (Listing Notice 2 – Scoping & EIA Process) and R324 (Listing Notice 3 – Basic Assessment) of 7 April 2017, and are prohibited to commence until environmental authorisation has been obtained from the competent authority, in this case, the Department of Environmental Affairs (DEA).

Listed Activities applicable to this proposed project are presented in the table below. All potential impacts associated with these Listed Activities are considered and assessed in this BA.

Applicable Listed Activities in terms of the NEMA

LISTING NOTICE	ACTIVITIES
LN 1 GN R327 ¹	11(i); 12; 19; 27 and 28
LN 3 GN R324 ²	4(a)(i)(bb)(ee) and (g)(i)(bb)(ee); 14(ii)(a)(c)(a)(i)(bb)(ff) and (g)(i)(bb)(ff); 23(ii)(a)(c)(a)(i)(bb)(ee) and (g)(i)(bb)(ee).

Result of Specialist Investigations

Specialist impacts associated with the construction, operation and decommissioning phases of this proposed development can be mitigated to acceptable levels, provided the recommended mitigation measures, as detailed in the EMP, are implemented. No objection to the authorisation of any of the proposed activities, inclusive of the grid connection options have been made by the specialists. It is recommended that the activity is authorised on condition that the proposed mitigation measures are strictly implemented.

¹ "Listing Notice 1 of the EIA Regulations, promulgated under Government Notice R983 of 4 December 2014, as amended by Government Notice R327 of 7 April 2017."

² "Listing Notice 3 of the EIA Regulations, promulgated under Government Notice R985 of 4 December 2014, as amended by Government Notice R324 of 7 April 2017."

Summary of Findings

SUMMARY OF CONSTRUCTION PHASE IMPACT ASSESSMENTS

Construction Phase	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Geology, Soils and Agricultural Potential Impact							
Loss of agricultural land	Low	Low	Low	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Neutral	Medium	High	High
Increased soil erosion hazard	Low	Medium	Medium	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Neutral	Medium	High	High
Freshwater and Wetlands							
Loss of riparian systems and disturbance of the alluvial watercourses	Medium	Medium	Medium	Negative	Medium	Medium	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Increase in sedimentation and erosion within the development footprint	Medium	Medium	Medium	Negative	Medium	Medium	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Impact on localised surface water quality	Medium	Medium	Medium	Negative	Medium	Low	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Flora and Terrestrial Fauna							
Impact on vegetation and listed plant species due to transformation within the development footprint	Low	High	Medium	Negative	Medium	High	High
With Mitigation	Low	Medium	Low	Negative	Low	Low	High
Faunal impacts due to construction-phase noise and physical disturbance	Low	Medium	High	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Negative	Low	Low	Medium
Avifauna							
Displacement of priority species due to habitat transformation	Low	High	Low	Negative	Low	Low	High
With Mitigation	Low	High	Low	Negative	Low	Low	High
Displacement due to Disturbance	Low	Low	Medium	Negative	Medium	High	Medium
With Mitigation	Low	Low	Low	Negative	Low	Low	Medium
Visual							
Impacts of the proposed 132 kV	Low	Low	Low	Negative	Low	Medium	Medium

Construction Phase	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
power lines and substations							
With Mitigation	Low	Low	Low	Negative	Low	Medium	Medium
Impacts of the proposed electrical infrastructure during construction	Low	Low	Low	Negative	Low	Medium	Medium
With Mitigation	Low	Low	Low	Negative	Low	Medium	Medium
Heritage							
Displacement or destruction of archaeological and colonial period heritage resources by earthmoving or excavation activities	Low	High	Medium	Negative	Medium	Medium	Medium
With Mitigation	Low	High	Low	Neutral	Low	Low	Medium
Palaeontological Heritage Impact							
Displacement or destruction of palaeontological heritage resources by earthmoving or excavation activities	Low	High	Medium	Negative	Medium	Medium	Medium
With Mitigation	Low	High	Low	Neutral	Low	Low	Medium
Social Impacts							
Creation of employment opportunities	Medium	Low	Low	Positive	Low	Medium	High
With Enhancements	Medium	Low	Medium	Positive	Medium	High	High
Potential risk to the safety of farmers and farmworkers, livestock and damage to farm infrastructure	Medium	Low	Medium	Negative	Medium	Medium	High
With Mitigation	Medium	Low	Low	Negative	Low	Medium	High
Increased risk of fires	Medium	Low	Medium	Negative	Medium	Medium	High
With Mitigation	Medium	Low	Low	Negative	Low	Medium	High
Construction vehicles	Medium	Low	Medium	Negative	Medium	Medium	High
With Mitigation	Medium	Low	Low	Negative	Low	Medium	High
Traffic							
Increase traffic volumes and disruption on the route and access points to site	Medium	Low	Low	Negative	Low	High	High
With Mitigation	Low	Low	Low	Neutral	Low	High	High

Construction Phase	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Air pollution from dust, greenhouse gas emissions from vehicles and increased noise levels from vehicle traffic	Low	Low	Low	Negative	Low	High	High
With Mitigation	Low	Low	Low	Negative	Low	High	High

SUMMARY OF OPERATIONAL PHASE IMPACT ASSESSMENTS

Operational Phase	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Geology, Soils and Agricultural Potential Impact							
Loss of agricultural land	Low	Low	Low	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Neutral	Medium	High	High
Increased soil erosion hazard	Low	Medium	Medium	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Neutral	Medium	High	High
Freshwater and Wetlands							
Impact on riparian systems through the possible increase in surface water runoff	Medium	Medium	Medium	Negative	Medium	Medium	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Increase in sedimentation and erosion within the development footprint	Medium	Medium	Medium	Negative	Medium	Medium	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Impact on localised surface water quality	Medium	Medium	Medium	Negative	Medium	Low	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Flora and Terrestrial Fauna							
Following construction, the site will be highly vulnerable to soil erosion	Low	High	Medium	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Following construction, the site will be vulnerable to alien plant invasion	Low	High	Medium	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Cumulative impact on CBAs and broad-scale ecological processes	Low	High	Medium	Negative	Medium	High	High
With Mitigation	Low	Medium	Low	Negative	Low	Low	High

Operational Phase	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Avifauna							
Electrocution of priority avifauna in the substations	Medium	High	High	Negative	Medium	Low	High
With Mitigation	Medium	High	Low	Negative	Low	Low	High
Mortality of priority avifauna due to collisions	Medium	High	High	Negative	High	High	High
With Mitigation	Medium	High	High	Negative	Medium	Low	Medium
Visual							
Impacts of the proposed 132kV power line and substations	Low	Medium	Low	Negative	Low	Medium	Medium
With Mitigation	Low	Medium	Low	Negative	Low	Medium	Medium
Impacts of the proposed 400 kV turn-in options and the southerly 132 kV OHL (HBH Corridor)	Low	Medium	Medium	Negative	Medium	Medium	Medium
With Mitigation	Low	Medium	Medium	Negative	Medium	Medium	Medium
Heritage							
Displacement or destruction of archaeological and colonial period heritage resources by earthmoving or excavation activities	Low	High	Medium	Negative	Medium	Medium	Medium
With Mitigation	Low	High	Low	Neutral	Low	Low	Medium
Palaeontological Heritage Impact							
Impacts to Palaeontology	Low	High	Medium	Negative	Medium	Medium	Medium
With Mitigation	Low	High	Low	Neutral	Low	Low	Medium
Social Impacts							
Creation of employment opportunities	Medium	Low	Low	Positive	Low	Medium	High
With Enhancements	Medium	Low	Low	Positive	Low	Medium	High
Visual impact of HBH Corridor Option	Medium	Medium	Medium	Negative	Medium	Medium	Medium
With Mitigation	Medium	Medium	Medium Low	Negative	Medium	Medium	Medium
Potential impact on property values	Medium	Medium	Medium	Negative	Medium	Medium	Medium
With Mitigation	Medium	Medium	Low	Negative	Low	Medium	Medium
Potential impact on tourism	Medium	Medium	Low	Negative	Low	Medium	High

Operational Phase	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
With Mitigation	Medium	Medium	Low	Negative	Low	Medium	High

SUMMARY OF DECOMMISSIONING PHASE IMPACT ASSESSMENTS

Decommissioning Phase	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Freshwater and Wetlands							
Loss of riparian systems and disturbance of the alluvial watercourses	Medium	Medium	Medium	Negative	Medium	Medium	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Impact on riparian systems through the possible increase in surface water runoff	Medium	Medium	Medium	Negative	Medium	Medium	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Increase in sedimentation and erosion within the development footprint	Medium	Medium	Medium	Negative	Medium	Medium	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Impact on localised surface water quality	Medium	Medium	Medium	Negative	Medium	Low	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Flora and Terrestrial Fauna							
Faunal impacts due to decommissioning phase activities	Medium	Low	High	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Negative	Low	Medium	High
Flora and Terrestrial Fauna							
Faunal impacts due to decommissioning phase activities	Low	Low	Medium	Negative	Medium	Medium	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Following decommissioning, the site will be highly vulnerable to soil erosion	Low	Medium	Medium	Negative	Medium	Medium	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Following decommissioning, the site will be vulnerable to alien plant invasion	Low	High	Medium	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Avifauna							
Displacement of priority species due to disturbance	Low	Low	Medium	Negative	Medium	High	Medium

Decommissioning Phase	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
With Mitigation	Low	Low	Medium	Negative	Medium	Medium	Medium
Heritage							
Displacement or destruction of archaeological and colonial period heritage resources by earthmoving or excavation activities	Low	High	Medium	Negative	Medium	Medium	Medium
With Mitigation	Low	High	Low	Neutral	Low	Low	Medium
Palaeontological Heritage Impact							
Impacts to Palaeontology	Low	High	Medium	Negative	Medium	Medium	Medium
With Mitigation	Low	High	Low	Neutral	Low	Low	Medium
Visual							
Impacts of the proposed 132 kV power lines and substations	Low	Low	Low	Negative	Low	Medium	Medium
With Mitigation	Low	Low	Low	Negative	Low	Medium	Medium
Impacts of the proposed 400 kV turn-in options and the southerly 132 kV OHL (HBH Corridor)	Low	Low	Low	Negative	Low	Medium	Medium
With Mitigation	Low	Low	Low	Negative	Low	Medium	Medium
Social							
Loss of jobs and associated income	Medium	Low	Low	Negative	Low	Medium	High
With Mitigation	Medium	Low	Low	Negative	Low	Medium	High
Traffic							
Increase traffic volumes and disruption on the route and access points to site	Medium	Low	Low	Negative	Low	High	High
With Mitigation	Low	Low	Low	Neutral	Low	High	High
Air pollution from dust, greenhouse gas emissions from vehicles and increased noise levels from vehicle traffic	Low	Low	Low	Negative	Low	High	High
With Mitigation	Low	Low	Low	Negative	Low	High	High

SUMMARY OF CUMULATIVE PHASE IMPACT ASSESSMENTS

Cumulative Phase	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Freshwater and Wetlands							
Overall cumulative impact	Medium	Medium	Medium	Negative	Medium	Medium	High

Cumulative Phase	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
With Mitigation	Low	Low	Low	Negative	Low	Low	Low
Flora and Terrestrial Fauna							
Faunal impacts due to decommissioning phase activities	Medium	Low	High	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Negative	Low	Medium	High
Following decommissioning, the site will be highly vulnerable to soil erosion	Medium	High	Medium	Negative	High	High	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Faunal impacts due to decommissioning phase activities	Medium	Low	High	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Negative	Low	Medium	High
Alien Plant Invasion following decommissioning	Medium	High	Medium	Negative	High	High	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Avifauna							
Cumulative impact of electrocution, collision and displacement	Medium	High	Medium	Negative	High	Medium	Medium
With Mitigation	Medium	High	Medium	Negative	Medium	Low	Medium
Visual							
Cumulative visual impacts as a result of the renewable energy developments (including associated infrastructure) proposed nearby during construction	Medium	Medium	High	Negative	Medium	Medium	Medium
With Mitigation	Medium	Medium	Medium	Negative	Medium	Medium	Medium
Cumulative visual impacts as a result of the renewable energy developments (including associated infrastructure) proposed nearby during operation	Medium	Medium	Medium	Negative	Medium	Medium	Medium
With Mitigation	Medium	Medium	Medium	Negative	Medium	Medium	Medium
Social							
Impacts on sense of place and the landscape	Medium	High	Medium	Negative	Medium	Medium	Medium
With Mitigation	Medium	Medium	Medium	Negative	Medium	Medium	Medium

Conclusion

Taking into consideration the findings of the BA process for the proposed development and the fact that recommended mitigation measures have been used to inform the project design, it is the opinion of the Environmental Assessment Practitioner (EAP) that the majority of negative impacts associated with the implementation of the proposed project have been mitigated to acceptable levels. While the residual impacts of the project will have an impact on the local environment, the extent of the benefits associated with the implementation of the project will benefit a much larger group of people, in terms of renewable energy supply and positive local and regional economic impact.

The study has concluded that there are no negative high residual impacts, including potential cumulative impacts associated with the proposed development, and can be authorised.

ABBREVIATIONS, ACRONYMS AND UNITS

ATNS	Air Traffic and Navigation Services SOC Limited	MW	Megawatt
BA	Basic Assessment	NCR	Noise Control Regulations
BAR	Basic Assessment Report	NDP	National Development Plan
CARA	Conservation of Agricultural Resources, 1983 (Act No. 43 of 1983)	NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
CBA	Critical Biodiversity Area	NFEPA	National Freshwater Ecosystem Priority Area
CSP	Concentrated Solar Power	NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
DAFF	Department of Agriculture, Forestry and Fisheries	NSD	Noise-sensitive Development
dB	Decibel	NWA	National Water Act, 1998 (Act No. 36 of 1998)
DEA	Department of Environmental Affairs (National)	PES	Present Ecological State
DEDEA	Eastern Cape Department: Economic Development Environmental Affairs, and Tourism	PGDS	Provincial Growth and Development Strategy
DMR	Department of Mineral Resources	PPA	Power Purchase Agreement
DoE	Department Of Energy	PPP	Public Participation Process
EAP	Environmental Assessment Practitioner	PV	Solar photovoltaic
ECA	Environment Conservation Act, 1989 No. 73 of 1989)	REIPPPP	Renewable Energy Independent Power Producer Procurement Programme
EIA	Environmental Impact Assessment	SABAAP	South African Bat Assessment Advisory Panel
EMPr	Environmental Management Programme	SAHRA	South African Heritage Resources Agency
ESA	Ecological Support Area	SANBI	South African National Biodiversity Institute
ESA	Early Stone Age	SANRAL	South African National Roads Agency Limited
ESKOM	Eskom Holdings SOC Limited	SANS	South African National Standards
EWT	Endangered Wildlife Trust	SAPS	South African Police Service
GIS	Geographical Information Systems	SAWS	South African Weather Service
GNR	Government Notice Regulation	SCADA	Supervisory Control and Data Acquisition
HIA	Heritage Impact Assessment	SDF	Spatial Development Framework
I&AP	Interested and Affected Party	SEA	Strategic Environmental Assessment
IDP	Integrated Development Plan	SIA	Social Impact Assessment
IEM	Integrated Environmental Management	SPV	Special Project Vehicle
IPP	Independent Power Producer	WEF	Wind Energy Facility
IRP	Integrated Resource Plan	WHO	World Health Organisation
kV	Kilovolt	WTG	Wind Turbine Generator
kWh	Kilowatt Hours	WULA	Water Use License Application
LSA	Late Stone Age		
MSA	Middle Stone Age		

DEPARTMENT OF ENVIRONMENTAL AFFAIRS INFORMATION REQUIREMENTS FOR WIND FARM APPLICATIONS

The Department of Environmental Affairs' requirements for information for all applications for Grid Connections is included in this section of the report. Where this information is not provided in the tables below, the location of where it can be found in the report is indicated.

Table A: DEA Information Requirements - Grid Connection Technical Details

Component	Description/Dimensions
Height of pylons	Up to 45 m
Length of transmission line	Max 25 km depending on the substation location and OHL route selected.
Type of poles used	Concrete monopoles
Area occupied by pylon servitude	34 m in width
Transmission capacity	132 kV
Area occupied by both permanent and construction laydown areas	Laydown areas used are the same as for the WEF - within authorised construction footprint - approximately 67.5 ha.
Area occupied by buildings	The O&M complex of approximately 18 ha will form part of the substation compound.
Length of service road	Approximately 30 km (longest proposed overhead powerline route i.e. worst-case scenario)
Width of service road	4 m wide
Proximity to grid connection	Approximately 30 km (longest proposed overhead powerline route i.e. worst-case scenario)
Height of fencing	Up to 3 m around substations and buildings
Type of fencing	Stock proof palisade and/or diamond mesh (around substation)
Area occupied by inverter transformer stations/substations	San Kraal substation expansion: approximately 18 ha SK-PH Collector substation: approximately 9 ha Step up substations and switching stations: approximately 30 ha Total: 57 ha
Capacity of on-site substation	132 kV

Table B: DEA Information Requirements - Site Maps and GIS Information

Site Maps and GIS Information	Section of this Report
All maps/information layers are provided in ESRI Shapefile format.	
All affected farm portions must be indicated.	Figure 6.1 Proposed Site Development Plan
The exact site of the application must be indicated (the areas that will be occupied by the application).	Figure 1.1 Site Location Figure 6.1 Proposed Site Development Plan Figure 7.1 - 7.4 WEF specific Grid Connection Route Alternatives
A <i>status quo</i> map/layer must be provided that includes the following: Current use of land on the site including:	

Site Maps and GIS Information	Section of this Report
Buildings and other structures	Volume II: Specialist Reports
Agricultural fields	Volume II: Specialist Reports
Grazing areas	Volume II: Specialist Reports
Natural vegetation areas (natural veld not cultivated for the preceding 10 years) with an indication of the vegetation quality as well as fine-scale mapping in respect of Critical Biodiversity Areas and Ecological Support Areas	Volume II: Specialist Reports Biodiversity Areas
Critically endangered and endangered vegetation areas that occur on the site	Volume II: Specialist Reports
Bare areas which may be susceptible to soil erosion	No specific bare areas have been identified. During construction phase, vegetation removal will be confined to the smallest possible footprint, runoff will be controlled, and site-specific measures will be devised for any potentially high-risk areas.
Cultural historical sites and elements	Figure 11 Environmental Sensitivity
Rivers, streams and watercourses	Volume II: Specialist Reports
Ridgelines and 20 m continuous contours with height references in the GIS database	Volume II: Specialist Reports
Fountains, boreholes, dams (in-stream as well as off-stream) and reservoirs	Volume II: Specialist Reports
High potential agricultural areas as defined by the Department of Agriculture, Forestry and Fisheries	Volume II: Specialist Reports
Buffer zones (also where it is dictated by elements outside the site): 500 m from any irrigated agricultural land 1 km from residential areas	Figure 11 Environmental Sensitivity
Indicate isolated residential, tourism facilities on or within 1 km of the site	Volume II: Specialist Reports

Site Maps and GIS Information	Section of this Report
<p>A slope analysis map/layer that includes the following slope ranges:</p> <p>Less than 8% slope (preferred areas for turbines and infrastructure)</p> <p>Between 8% and 12% slope (potentially sensitive to turbines and infrastructure) Between 12% and 14% slope (highly sensitive to turbines and infrastructure)</p> <p>Steeper than 18% slope (unsuitable for turbines and infrastructure)</p>	Volume II: Specialist Reports
A map/layer that indicates locations of birds and bats including roosting and foraging areas	Volume II: Specialist Reports
<p>A site development proposal map(s)/layer(s) that indicate:</p> <p>Turbine positions</p> <p>Foundation footprint</p> <p>Permanent laydown area footprint</p> <p>Construction period laydown footprint</p> <p>Internal roads indicating width (construction period width and operation period width) and with numbered sections between the other site elements which they serve (to make commenting on sections possible).</p>	Figure 6.1 Site Development Plan
River, stream and water crossing of roads and cables indicating the type of bridging structures that will be used.	Volume II: Specialist Reports
Substation(s) and/or transformer(s) sites including their entire footprint.	Figure 6.1 Site Development Plan
Cable routes and trench dimensions (where they are not along internal roads) Connection routes to the distribution/transmission network (the connection must form part of the EIA even if the construction and maintenance thereof will be done by another entity such as Eskom).	Figure 6.1 Site Development Plan
Cut and fill areas at turbine sites along roads and at substation/transformer sites indicating the expected volume of each cut and fill	Pylons will be placed in areas that minimise cut & fill required.
Borrow pits	No borrow pits on site. Licensed borrow pits will be used to source material.
Spoil heaps (temporary for topsoil and subsoil and permanently for excess material) Buildings including accommodation	Temporary and permanent spoil heaps will be kept within demarcated construction areas and monitored by the ECO during the construction phase.

Table C: Geographic Coordinates of Linear activities to be authorised

Options	Start coordinates	Middle coordinates	End coordinates
San Kraal Corridor	-31.24968; 25.015103	-31.28241; 24.908770	-31.3550; 24.825598

Phezukomoya Corridor	-31.35427; 24.82516	-31.30298; 24.87821	-31.35263; 24.92765
HBH Corridor	-31.25027; 25.01638	-31.32083; 24.92472	-31.35500; 24.82555

Table D: The 21 digit Surveyor General code of each cadastral land parcel

Farm Number	21 SG Code	Farm Number	21 SG Code
RE 181	C02100000000018100000	3/1	C0480000000000100003
15/182	C02100000000018200015	2/11	C04800000000001100002
3/182	C02100000000018200003	12/1	C0480000000000100012
46/182	C02100000000018200046	RE/117	C03000000000011700000
14	C0480000000001400000	1/117	C03000000000011700001
RE/13	C0480000000001300000	RE/118	C03000000000011800000
1/11	C0480000000001100001	4/11	C0480000000001100004
47/182	C02100000000018200047	RE/11	C0480000000001100000
2	C0480000000000200000	RE/ 8/11	C0480000000001100008
RE/13/1	C0480000000000100013	5	C0480000000000500000
RE/182	C02100000000018200000	RE/6	C0480000000000600000
RE/1/1	C0480000000000100001	3/8	C0480000000000800003
RE/11/1	C0480000000000100011	4/8	C0480000000000800004
18/1	C0480000000000100018		

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1 INTRODUCTION

Arcus Consultancy Services South Africa (Pty) Ltd ('Arcus') was appointed by Hartebeesthoek Wind Power (Pty) Ltd to act as the independent environmental impact assessment practitioner (EAP) to conduct the Basic Assessment (BA) process, as required by the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), as amended. The BA application process is required for the proposed development of 132 kV overhead power lines, on-site switching stations, proposed expansion to a substation, the development of a collector substation, and associated infrastructure.

The Wind Energy Facilities (WEFs) that will connect to this proposed grid connection has been submitted as separate applications to the Competent Authority. Applications were submitted for the split of the authorised San Kraal WEF (DEA Ref. No. 14/12/16/3/3/2/1029 and 14/12/16/3/3/2/1029/AM1) ('San Kraal') into two smaller WEFs (namely San Kraal Split 1 and Hartebeesthoek East), and the split of the authorised Phezukomoya WEF (DEA Ref. No. 14/12/16/3/3/2/1028 and 14/12/16/3/3/2/1028/AM1) ('Phezukomoya') into two smaller WEFs (namely Phezukomoya Split 1 and Hartebeesthoek West). The San Kraal WEF is authorised for a maximum generation capacity of 390 MW, a 25 km 132 kV grid connection transmission line south-east of the town of Noupoot, a substation, on-site switching stations and temporary laydown areas. The Phezukomoya WEF is authorised for a maximum generation capacity of 275 MW, a 16 km 132 kV grid connection transmission line south-east of the town of Noupoot, a substation, on-site switching stations, temporary laydown areas and a 100 m corridor surrounding the Umsobomvu Substation.

Hartebeesthoek Wind Power (Pty) Ltd, are applying for environmental authorisation for all electrical grid connection and associated infrastructure, in relation to connecting the WEFs to the national grid ('Grid Infrastructure'). Furthermore, it is anticipated that the electrical component would be transferred to Eskom once construction is complete.

This report pertains to the **Electrical Grid Connection and Associated Infrastructure for the WEFs**. The proposed development is collectively referred to as the 'Grid Infrastructure' in this report.

1.1 Purpose and Structure of this Report

The purpose of this Basic Assessment (BA) Report is to present the environmental impact assessment process undertaken for the Grid Infrastructure. The routes, sites, layouts, and technical specifications were assessed by the specialists, and their findings and assessment are collated in this BA report. This BA report will provide sufficient information for the competent authority to make an informed decision on the proposed development.

This report is set out in two volumes:

Volume I: Basic Assessment Report

Volume II: Specialist Reports

Section	Title	Containing
1	Introduction	Purpose and Structure of the BA Report, the details of the applicant, details of the EAP and specialists, and the assumptions and limitations of the study.
2	Environmental Legal Framework	National Environmental Legislation, International Conventions and Treaties, Policies and Guidelines, and Impact Assessments and Reporting

Section	Title	Containing
3	Methodology	Specialists Studies Methodology, Assessment Techniques for the BA
4	Public Participation	BA Phase Public Participation Process
5	Need and Desirability	Description of the Need and Desirability of the Proposed Development.
6	Assessment of Alternatives	The No-Go Alternatives, Electrical Grid Connection Corridors and the Alternative Assessment Summary
7	The Proposed Development Description	Description of the Proposed Development, and Grid Connection Options
8	Baseline Environment Description	A Detailed Description of the Affected Environment, including Freshwater and Wetlands, Flora, Fauna, Avifauna, Visual, Heritage, Social, Soil and Traffic.
9	Assessment of Potential Impacts	A Detailed Assessment of the Potential Impacts During the Construction, Operational and Decommissioning, and Cumulative Phases.
10	Summary of Findings	Summary of the Findings of the Impact Assessment, Recommendations and Conclusions.
11	Conclusion	Conclusion of the BA process followed
12	Impact Statement	A summary of the key findings of the environmental impact assessment of the proposed development.
Appendix A	EAP Declaration of Independence and CV	Commissioner of Oaths EAP Declaration of Independence and CV of the EAP.
Appendix B	Environmental Management Programme	The Environmental Management Programme, detailing the Proposed Mitigation Measures, and the Roles and Responsibility of Management during the Construction, Operation and Decommissioning of the Proposed Development.
Appendix C	Public Participation Proof	Site and Poster Notice and Newspaper Advertisement Proof

1.2 The Applicant

EDF Renewables (Pty) Ltd (previously InnoWind) is a South African registered company dedicated to the development of wind energy projects which develops, finances, builds, owns and operates commercial wind-powered generation facilities to supply energy into the national power grid.

To date, EDF Renewables (Pty) Ltd has been awarded four wind energy projects under the renewable energy independent power producer procurement (REIPPP) programme of the Department of Energy (DoE) amounting to 139 MW. These include the Chaba (Komga), Waainek (Grahamstown), Grassridge (Port Elizabeth) and Riverbank (Wesley-Ciskei) wind power projects, all located in the Eastern Cape.

EDF Renewables (Pty) Ltd is applying for authorisation for the proposed development through the Special Purpose Vehicle (SPV) Hartebeesthoek Wind Power (Pty) Ltd.

1.3 The Project Team

1.3.1 Arcus

The coordination and management of the basic assessment application process is being conducted by Arcus Consultancy Services South Africa (Pty) Ltd ('Arcus') with the lead EAP being Ashlin Bodasing. Refer to Appendix A for the EAP's Declaration of Interest and Curriculum Vitae.

Ashlin Bodasing

Qualifications Bachelor of Social Science (Geography and Environmental Management)

Experience in Years 14

Experience Ashlin Bodasing is the Technical Director at Arcus, located in Cape Town. Having obtained her Bachelor of Social Science Degree from the University of Kwa-Zulu Natal; she has over 14 years' experience in the environmental consulting industry in southern Africa. She has gained extensive experience in the field of Integrated Environmental Management, environmental impact assessments and public participation. She has also been actively involved in a number of industrial and infrastructural projects, including electricity power lines and substations; road and water infrastructure upgrades and the installation of telecommunication equipment, green field coal mines, as well as renewable energy facilities, both wind and solar. Ashlin has major project experience in the development of Environmental Impact Assessments, Environmental Management Plans and the monitoring of construction activities. Her areas of expertise include project management, environmental scoping and impact assessments, environmental management plans, environmental compliance monitoring and environmental feasibility studies. Experience also includes International Finance Corporation Performance Standards and World Bank Environmental Guidelines environmental reviews. She has worked in Mozambique, Botswana, Lesotho and Zimbabwe.

Aneesah Alwie

Qualifications Bachelor of Science (Environmental and Water Science)

Experience in Years 6

Experience Aneesah Alwie is a Project Administrative Assistant at Arcus. Having obtained her Bachelor of Science Degree (Environmental and Water Science) from the University of the Western Cape; she has over 8 years public relations experience in conjunction with 6 years' experience as support to a technical team. Aneesah offers administrative and technical support to ensure that projects are completed in time and within budget. Key qualifications as the administrative assistant is that she excels in multitasking, data capturing, GIS assistance, communication and organizational skills, problem solving and attention to detail. Her excellent organisational skills and extensive experience in support to project managers enables smooth flow of the assigned project duties and meeting project deadlines. Aneesah now also manages assistance in the concise and accurate operation of the public participation processes for projects.

Arcus is a specialist environmental consultancy providing environmental services to the renewable energy market. Arcus has advised on over 150 renewable energy projects with environmental management and in-house specialist services, in South Africa and the United Kingdom.

1.3.2 The Specialists

The EAP assembled a team of technical specialists to undertake studies for the proposed Grid Connection.

The specialists' fields of investigation are listed in Table 3.1 below. These specialists have been selected based on their experience in the field of EIA and of renewable energy

projects, the locality of the proposed development, and as far as possible the specialists who conducted EIA studies for the authorised San Kraal WEF and Phezukomoya WEF. The only specialist that did not form part of the original 2018 San Kraal and Phezukomoya Project Team is the bat specialist.

Table 3.1: Specialist Team

Technical Discipline	Specialist Organisation	Lead Specialist
Aquatic / Freshwater	EnviroSci	Brian Colloty
Bats	Arcus	Jonathan Aronson
Avifauna	Chris van Rooyen Consulting	Chris van Rooyen
Ecology (Fauna and Flora)	3Foxes	Simon Todd
Cultural Heritage	ACO Associates cc	Tim Hart and John Gribble
Noise	Enviro Acoustic Research cc	Morné de Jager
Social	Tony Barbour	Tony Barbour
Agriculture and Soils	Agricultural Research Council – Soil, Climate and Water	Garry Paterson
Traffic	SMEC South Africa (Pty) Ltd	Kerry Xhobiso
Visual Impact	SiVEst	Andrea Gibb

1.4 Assumptions and Limitations

The following assumptions and limitations are noted for the BA Report and the specialist studies conducted for the proposed development:

- The assumption is made that the information on which this report is based (baseline studies and project information, as well as existing information) is accurate and correct at the time of writing this report.
- It should be emphasised that information, as presented in this report, only has reference to the study area as indicated on the accompanying maps. Therefore, this information cannot be applied to any other area without a detailed investigation.
- It is assumed that the corridor investigated and assessed for the proposed powerline is technically suitable for such development.
- It is assumed that the connection to the national grid is technically adequate, feasible and viable.
- Majority of the proposed grid connection infrastructure falls within the project area previously assessed by the specialists for the authorised San Kraal WEF and Phezukomoya WEF. It has therefore been assumed that baseline conditions in the area remain largely unchanged and as a result, most specialists did not require to conduct ground-truthing. It is assumed that this is not a limiting factor for the intent of the study and desk-top study conducted provides accurate information.
- It has been assumed that existing roads and tracks within the facility will be upgraded to access any of the proposed infrastructure options, while the new roads and associated transmission lines can avoid or span the observed watercourses as far as possible. It has been further assumed that the water will be sourced from a licensed resource and not illegally abstracted from any surrounding watercourse, particularly if dust suppression is required.
- The assumptions and limitations, presented in each specialist report, Volume II of this report, and the specialist studies conducted as part of the previous EIA process for the authorised San Kraal and Phezukomoya WEFs, are noted for the BA Report.

2 ENVIRONMENTAL LEGAL FRAMEWORK

2.1 The National Environment Management Act, 1998 (Act No 107 of 1998)

Section 2 of the National Environment Management Act, 1998 (NEMA) as amended, lists environmental principles that are to be applied by all organs of state regarding proposals that may significantly affect the environment. Included amongst the key principles is the principle that all development must be socially, economically and environmentally sustainable, environmental management must place people and their needs at the forefront of its concern, to serve their physical, psychological, developmental, cultural and social interests equitably.

NEMA also provides for the participation of I&APs and it stipulates that decisions must take the interests, needs and values of all I&APs into account.

Chapter 5 of NEMA outlines the general objectives and implementation of Integrated Environmental Management (IEM), the latter providing a framework for the integration of environmental issues into the planning, design, decision-making and implementation of plans and development proposals. Section 24 provides a framework for the granting of environmental authorisations (EAs).

In order to give effect to the general objectives of IEM, the potential impacts on the environment of listed activities must be considered, investigated, assessed and reported to the competent authority. Section 24(4) outlines the minimum requirements for procedures for the investigation, assessment and communication of the potential impact of activities.

On the 22 March 2019 the Minister published GN R435 in *Government Gazette* No. 42323 requiring applications for EA "for substation and overhead electricity transmission and distribution infrastructure to utilise the generic Environmental Management Programme (EMPr), contemplated in Regulations 19(4), 23(4) and Appendix 4 to the EIA Regulations, 2014, as amended". The DEA's generic EMPr applicable to the development of overhead powerlines requiring EA in terms of NEMA was utilised to compile the EMPr (Appendix B).

The NEMA EIA Regulations 2014, provide for the control of certain Listed Activities. These activities are listed in Government Notice No. R327 (Listing Notice 1 - Basic Assessment), R325 (Listing Notice 2 - Scoping & EIA Process) and R324 (Listing Notice 3 - Basic Assessment) of 7 April 2017, and are prohibited to commence until environmental authorisation has been obtained from the competent authority, in this case, the Department of Environmental Affairs (DEA).

The DEA is the competent authority for all renewable energy proposals, as NEMA states that:

"24C. (2) The Minister must be identified as the competent authority in terms of subsection (1) if the activity - (a) has implications for international environmental commitments or relations;

Any Environmental Authorisation obtained from the DEA applies only to those specific listed activities for which the application was made. To ensure that all Listed Activities that could potentially be applicable to this proposal are covered by the Environmental Authorisation, a precautionary approach is followed when identifying listed activities, that is, if an activity could potentially be part of the proposed development, it is listed.

The Listed Activities applicable to this proposed project are presented in Table 2.1 below. All potential impacts associated with these Listed Activities will be considered and adequately assessed in this BA process.

Table 2.1: NEMA EIA Regulations 2014 as Amended Listed Activities in Relation to the Proposed Development

Listing Notices 1 and 3 07 April 2017	Listed Activity	Description of project activity that triggers listed activity
Listing Notice 1 GN R 327 Activity 11	<i>The development of facilities or infrastructure for the transmission and distribution of electricity— (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.</i>	132 kilovolt overhead powerlines will be installed to transfer electricity from the on-site substation(s) to the proposed Eskom Hydra D substation
Listing Notice 1 GN R 327 Activity 12	<i>The development of- (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs (a) within a watercourse; (c) if no development setback exists within 32 m of a watercourse, measured from the edge of a watercourse.</i>	Infrastructure such as roads is proposed within 32 m of a watercourse. The cumulative footprint of all proposed development within 32 m of a watercourse may exceed 100 square metres.
Listing Notice 1 GN R 327 Activity 19	<i>The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;</i>	Construction of the proposed development could include the excavation of soil in watercourses/drainage line areas, and infilling/deposition may exceed 5 cubic metres and in some instances may exceed 10 cubic metres. Borrow pits for the sourcing of aggregate material may be required.
Listing Notice 1 GN R 327 Activity 27	<i>The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation</i>	The infrastructure associated with the overhead powerline may require clearing of more than 1 hectare of indigenous vegetation but less than 20 hectares.
Listing Notice 1 GN R 327 Activity 28	<i>Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare</i>	Construction of the proposed development will change the land use from agriculture to mixed - agriculture and electricity transmission. The proposed development is outside an urban area and has a footprint that will exceed 1 ha.
Listing Notice 3 GN R 324 Activity 4	<i>The development of a road wider than 4 metres with a reserve less than 13,5 metres a. Eastern Cape i. Outside urban areas: (bb) National Protected Area Expansion Strategy Focus areas; (ee) Critical Biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; g. Northern Cape i. Outside urban areas: (bb) National Protected Area Expansion Strategy Focus areas; (ee) Critical biodiversity areas as identified in systematic biodiversity</i>	Internal and external access roads will be constructed, which are wider than 4 m. The site falls outside of an urban area and contains indigenous vegetation.

Listing Notices 1 and 3 07 April 2017	Listed Activity	Description of project activity that triggers listed activity
	<i>plans adopted by the competent authority or in bioregional plans;</i>	
<p>Listing Notice 3 GN R324 Activity 14</p>	<p><i>The development of— (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs— (a) within a watercourse; (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; a. Eastern Cape i. Outside urban areas: (bb) National Protected Area Expansion Strategy Focus areas; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; g. Northern Cape i. Outside urban areas: (bb) National Protected Area Expansion Strategy Focus areas; (ff) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p>	<p>Bridges and infrastructure associated with the overhead powerline may be constructed within 32 m of a watercourse(s). The site lies outside of an urban area and contains indigenous vegetation.</p>
<p>Listing Notice 3 GN R324 Activity 23</p>	<p><i>The expansion of— (ii) infrastructure or structures where the physical footprint is expanded by 10 square metres or more; where such expansion occurs— (a) within a watercourse; (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; a. Eastern Cape i. Outside urban areas: (bb) National Protected Area Expansion Strategy Focus areas; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; g. Northern Cape i. Outside urban areas: (bb) National Protected Area Expansion Strategy Focus areas; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p>	<p>The construction of the overhead powerline may include the expansion of existing bridges over watercourses. The site lies outside of any urban area, and parts of the site fall within a Critical Biodiversity Area.</p>

2.2 The National Heritage Resources Act, 1999 (Act No 25 of 1999)

Section 38 (1) of the National Heritage Resources Act, 1999 (NHRA) lists development activities that would require authorisation by the responsible heritage resources authority. Activities considered applicable to the proposed project include the following:

*“(a) The construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
(c) any development or other activity which will change the character of a site; and
(i) exceeding 5000 m² in extent.”*

The NHRA requires that a person intending to undertake such an activity must notify the relevant national and provincial heritage authorities at the earliest stages of initiating such a development.

The relevant heritage authority would then in turn, notify the person whether a Heritage Impact Assessment Report should be submitted. According to Section 38(8) of the NHRA, a separate report would not be necessary if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (No. 73 of 1989) (ECA) (now replaced by NEMA) or any other applicable legislation. The decision-making authority must ensure that the heritage evaluation fulfils the requirements of the NHRA and take into account any comments and recommendations made by the relevant heritage resources authority. As such, a Heritage Impact Assessment (HIA) will form part of this Basic Assessment process.

In South Africa, the law is directed towards the protection of human-made heritage, although places and objects of scientific importance are covered. The NHRA also protects intangible heritage such as traditional activities, oral histories and places where significant events happened. Generally protected heritage, which must be considered in any heritage assessment, includes:

- *Any place of cultural significance (described below);*
- *Buildings and structures (greater than 60 years of age);*
- *Archaeological sites (greater than 100 years of age);*
- *Palaeontological sites and specimens;*
- *Shipwrecks and aircraft wrecks; and*
- *Graves and graveyards.*

Section 3(3) of the NHRA defines the cultural significance of a place or objects with regard to the following criteria:

- a. Its importance in the community or pattern of South Africa’s history;*
- b. Its possession of uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage;*
- c. Its potential to yield information that will contribute to an understanding of South Africa’s natural or cultural heritage;*
- d. Its importance in demonstrating the principal characteristics of a particular class of South Africa’s natural or cultural places or objects;*
- e. Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;*
- f. Its importance in demonstrating a high degree of creative or technical achievement at a particular period;*
- g. Its strong or special association with a particular community or cultural group for social cultural or spiritual reasons;*
- h. Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and*
- i. Sites of significance relating to the history of slavery in South Africa.*

While not specifically mentioned in the NHRA, Scenic Routes are recognised as a category of heritage resources which requires grading as the Act protects area of aesthetic significance (clause "e" above).

2.3 Conservation of Agricultural Resources, 1983 (Act No. 43 of 1983)

The Conservation of Agricultural Resources Act (CARA), 1983 states that no degradation of natural land is permitted. The Act requires the protection of land against soil erosion and the prevention of waterlogging and salinisation of soils by means of suitable soil conservation works to be constructed and maintained. The utilisation of marshes, water sponges and watercourses are also addressed.

2.4 The Environment Conservation Act, 1989 (Act No.73 of 1989), the National Noise Control Regulations: GN R154 of 1992

The Environment Conservation Act, 1989 (ECA) allows the Minister of Environmental Affairs and Tourism ("now the Minister of Environmental Affairs") to make regulations regarding noise, amongst other concerns. The Minister has made noise control regulations under the ECA.

In terms of section 25 of the ECA, the national noise-control regulations (NCR) were promulgated (GN R154 in *Government Gazette* No. 13717 dated 10 January 1992). The NCRs were revised under Government Notice Number R. 55 of 14 January 1994 to make it obligatory for all authorities to apply the regulations.

Subsequently, in terms of Schedule 5 of the Constitution of South Africa of 1996 legislative responsibility for administering the NCR was devolved to provincial and local authorities.

These regulations define "**disturbing noise**" as:

"Noise level which exceeds the zone sound level or, if no zone sound level has been designated, a noise level which exceeds the ambient sound level at the same measuring point by 7 dBA or more".

These Regulations prohibits anyone from causing a disturbing noise.

No provincial noise control regulations have been promulgated in the Northern nor in the Eastern Cape Provinces, and thus the National Noise Control Regulations will not be relevant here.

2.5 National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)

Section 34 of the Air Quality Act, 2004 (AQA) makes provision for:

- (1) The Minister to prescribe essential national noise standards -
 - (a) For the control of noise, either in general or by specified machinery or activities or in specified places or areas; or
 - (b) For determining –
 - (i) a definition of noise; and
 - (ii) The maximum levels of noise.
- (2) When controlling noise, the provincial and local spheres of government are bound by any prescribed national standards.

This section of the Act is in force, but no such standards have yet been promulgated.

An atmospheric emission license issued in terms of Section 22 may contain conditions in respect of noise. This, however, will not be relevant to the Grid Connection.

2.5.1 National Dust Control Regulations, 2013

The National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004), makes provision for national dust control regulations. These regulations prescribe dust fall standards for residential and non-residential areas. These Regulations also provide for dust monitoring, control and reporting.

The acceptable dust fall out rates are:

Restriction Area	Dust Fall (D) (mg/m ² /day, 30 day average)	Permitted Frequency of exceedance
Residential	D<600	Two within a year, not sequential months
Non- Residential	600 <D< 1200	Two within a year, not sequential months

2.6 National Water Act, 1998 (Act No. 36 of 1998)

The National Water Act, 1998 (NWA) provides for constitutional requirements including pollution prevention, ecological and resource conservation and sustainable utilisation. In terms of this Act, all water resources are the property of the State.

A water resource includes any watercourse, surface water, estuary or aquifer, and, where relevant, its bed and banks. A watercourse is interpreted as a river or spring; a natural channel in which water flows regularly or intermittently; a wetland lake or dam into which or from which water flows; and any collection of water that the Minister may declare to be a watercourse.

Relevant water uses for the construction of the proposed Electrical Grid Connection and Associated Infrastructure, which will require access roads over watercourses and drainage channels, in terms of Section 21 of the Act include, but are not limited to, the following:

*Section 21(c): Impeding or diverting the flow of water in a watercourse; and
Section 21(i): Altering the bed, banks, course or characteristics of a watercourse.*

GN 1199 of 18 December 2009 grants general authorisation for the above water uses based on certain conditions. It also stipulates that these water uses must be registered with the responsible authority.

Pollution of river water is a contravention of the NWA. Chapter 3, Part 4 of the NWA deals with pollution prevention and in particular the situation where pollution of a water resource occurs or might occur as a result of activities on land. The person who owns, controls, occupies or uses the land in question is responsible for taking measures to prevent pollution of water resources.

Chapter 3, Part 5 of the NWA deals with pollution of water resources following an emergency incident, such as an accident involving the spilling of a harmful substance that finds or may find its way into a water resource. The responsibility for remedying the situation rests with the person responsible for the incident or the substance involved.

2.7 National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)

2.7.1 Threatened or Protected Species List, 2015

Amendments to the Threatened or Protected Species (TOPS) list were published on 31 March 2015 in Government Gazette No. 38600 and Notice 256 of 2015. Certain bird species that occur on the site may be threatened or protected.

2.7.2 Alien and Invasive Species Regulations, 2016

The Act and Regulations set out various degrees of Invasive species (Plants, Insects, Birds, Animals, Fish and Water Plants) and requires that certain of those invasive species are documented and, in some cases, removed from properties in South Africa.

The Regulations list 4 categories of invasive species that must be managed, controlled or eradicated from areas where they may cause harm to the environment, or that are prohibited to be brought into South Africa.

2.8 Cape Nature and Environmental Conservation Ordinance 19 of 1974

These were developed to protect both animal and plant species which warrant protection. These may be species which are under threat or which are already considered to be endangered, and species are listed in the relevant documents. The provincial environmental authorities are responsible for the issuing of permits in terms of this legislation.

2.9 The Nature and Environmental Conservation Ordinance No. 19 of 1974; and Northern Cape Nature Conservation Act, 2009 (Act No. 9 of 2009)

These were developed to protect both animal and plant species within the various provinces of the country which warrant protection. These may be species which are under threat or which are already considered to be endangered, and species are listed in the relevant documents. The provincial environmental authorities are responsible for the issuing of permits in terms of this legislation.

2.10 Additional Relevant Legislation

The applicant must also comply with the provisions of other relevant national legislation. Additional relevant legislation that has informed the scope and content of this BA Report includes the following:

- *Constitution of the Republic of South Africa, 1996 (Act No. 108, 1996);*
- *Aviation Act, 1962 (Act No. 74, 1962);*
- *National Environmental Management: Waste Act, 2008 (Act No. 59, 2008);*
- *National Forest Act, 1998 (Act No. 84, 1998);*
- *National Environmental Management: Protected Areas Act, 2003 (Act No. 57, 2003);*
- *National Roads Act, 1998 (Act No. 7, 1998)*
- *Occupational Health and Safety Act, 1993 (Act No. 85 of 1993);*
- *National Veld and Forest Fire Bill of 10 July 1998;*
- *Fertiliser, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947);*
- *Astronomy Geographic Advantage Act, 2007 (Act No. 21 of 2007);*
- *Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002); and*
- *Independent Communications Authority of South Africa Act, 2000 (Act No. 13 of 2000; as amended).*

2.11 Conventions and Treaties

2.11.1 The Convention on Biological Diversity (CBD) (1993)

This is a multilateral treaty for the international conservation of biodiversity, the sustainable use of its components and fair and equitable sharing of benefits arising from natural resources. Signatories have the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction.

The convention prescribes that signatories identify components of biological diversity important for conservation, and monitor these components in light of any activities that have been identified which are likely to have adverse impacts on biodiversity. The CBD is based on the precautionary principle which states that where there is a threat of significant reduction or loss of biological diversity, lack of full scientific certainty should not be used as a reason for postponing measures to avoid or minimise such a threat and that in the absence of scientific consensus the burden of proof that the action or policy is not harmful falls on those proposing or taking the action.

2.11.2 The Ramsar Convention (1971)

The Convention on Wetlands, called the Ramsar Convention, as it was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975, is an intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources. Under the three pillars of the convention the Contracting Parties commit to work towards the wise use of all their wetlands through national plans, policies and legislation, management actions and public education; designate suitable wetlands for their list of Wetlands of International Importance (the "Ramsar List") and ensure their effective management; and Cooperate internationally on transboundary wetlands, shared wetland systems, shared species, and development projects that may affect wetlands.

2.11.3 The Convention on the Conservation of Migratory Species of Wild Animals (CMS or Bonn Convention) (1983)

An intergovernmental treaty, concluded under the sponsorship of the United Nations Environment Programme, concerned with the conservation of wildlife and habitats on a global scale. The fundamental principles listed in Article II of this treaty state that signatories acknowledge the importance of migratory species being conserved and agree to take action to this end "*whenever possible and appropriate*", "*paying special attention to migratory species the conservation status of which is unfavourable and taking individually or in cooperation appropriate and necessary steps to conserve such species and their habitat*".

2.11.4 The Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) (1999)

An intergovernmental treaty developed under the framework of the Convention on Migratory Species (CMS), concerned with the coordinated conservation and management of migratory waterbirds throughout their entire migratory range. Signatories of the Agreement have expressed their commitment to work towards the conservation and sustainable management of migratory waterbirds, paying special attention to endangered species as well as to those with an unfavourable conservation status. The assessment of the ecology and identification of sites and habitats for migratory waterbirds is required to coordinate efforts that ensure that networks of suitable habitats are maintained and investigate problems likely posed by human activities.

2.12 Policies and Guidelines

2.12.1 Environmental Impact Assessment Guidelines

Relevant guidelines and policies as applicable to the management of the BA process and to this application have also been taken into account, as indicated below:

- Integrated Environmental Management (IEM) Guideline Series (Series 2): Scoping in the EIA process (2002);
- IEM Guideline Series (Series 3): Stakeholder engagement (2002);
- IEM Guideline Series (Series 4): Specialist studies (2002);

- IEM Guideline Series (Series 5): Impact Significance (2002);
- IEM Guideline Series (Guideline 5): Companion to the EIA Regulations 2010 (October 2012);
- IEM Guideline Series (Series 7): Cumulative Effects Assessment (2002);
- IEM Guideline Series (Guideline 7): Public Participation in the EIA process (October 2012);
- IEM Guideline Series (Series 7): Alternatives in the EIA process (2002);
- IEM Guideline Series (Guideline 9): Draft guideline on need and desirability in terms of the EIA Regulations 2010 (October 2012);
- DEA (2017) Guideline on Need and Desirability, Department of Environmental Affairs (DEA) Pretoria, South Africa (2017);
- IEM Guideline Series (Series 12): Environmental Management Plans (EMP) (2002); and
- IEM Guideline Series (Series 15): Environmental impact reporting (2002).

2.13 Impact Assessment and Reporting

The primary objective of the basic assessment process is to present sufficient information to the competent authority (CA) and interested and affected parties (I&APs) on predicted impacts and associated mitigation measures required to avoid or mitigate negative impacts, as well as to improve or maximise the benefits of the project.

In terms of legal requirements, NEMA EIA Regulations 2014, as amended, regulate and prescribe the content of the BA Report and specify the type of supporting information that must accompany the submission of the report to the authorities. Table 2.2 shows how and where the legal requirements are addressed in this BA Report. As the comments are received on the Draft BA Report these will be collated and included in the comments and response report which will be included in the Final BA Report.

The BA Report presents a summary of the findings and recommendations of all specialists.

As per the EIA Regulations 2014, as amended, *“the objective of the basic assessment process is to, through a consultative process-*

- a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;*
- b) identify the alternatives considered, including the activity, location and technology alternatives;*
- c) describe the need and desirability of the proposed alternatives;*
- d) through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine-*
 - i. the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and*
 - ii. the degree to which these impacts-*
 - (aa) can be reversed;*
 - (bb) may cause irreplaceable loss of resources; and*
 - (cc) can be avoided, managed or mitigated; and*

- e) *Through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to-*
- i. *identify and motivate a preferred site, activity and technology alternative;*
 - ii. *identify suitable measures to avoid, manage or mitigate identified impacts; and*
 - iii. *identify residual risk that need to be managed or monitored”.*

The above activities are completed through consultation with:

- The lead authorities involved in the decision-making for the BA application (in this case, the DEA);
- The public, I&APs and other relevant organisations to ensure that local issues are well understood; and
- The specialist team to ensure that technical issues are identified.

The existing environment within which a proposed development is to be located is investigated, through a review of relevant background literature and ground-truthing.

A primary objective is to present key stakeholders with the findings of the assessments, obtain and document feedback and address all issues raised.

Table 2.2: Legislative Requirements for Scope of Assessment and Content of Basic Assessment Reports

Appendix 1 Requirements NEMA, 1998 (Act No. 107 of 1998)	Location in BAR
<i>details of-</i> <i>(i) the EAP who prepared the report; and</i> <i>(ii) the expertise of the EAP, including a curriculum vitae;</i>	Section 1.3 Appendix A
<i>the location of the activity, including-</i> <i>(i) the 21 digit Surveyor General code of each cadastral land parcel;</i> <i>(ii) where available, the physical address and farm name;</i> <i>(iii) where the required information in items (i) and (ii) is not available, the co-ordinates of the boundary of the property or properties;</i>	Table D Figure 6.1
<i>a plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is-</i> <i>(i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or</i> <i>(ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;</i>	Figure 6.1
<i>a description of the scope of the proposed activity, including-</i> <i>(i) all listed and specified activities triggered and being applied for; and</i> <i>(ii) a description of the activities to be undertaken including associated structures and infrastructure;</i>	Table 2.1 Section 7
<i>a description of the policy and legislative context within which the development is proposed including-</i> <i>(i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and</i>	Section 2 Section 5

Appendix 1 Requirements NEMA, 1998 (Act No. 107 of 1998)	Location in BAR
<i>(ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools framework, and instruments;</i>	
<i>a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;</i>	Section 5
<i>a motivation for the preferred site, activity and technology alternative;</i>	Section 6
<i>a full description of the process followed to reach the proposed preferred alternative within the site, including-</i> <i>(i) details of the alternatives considered;</i>	Section 7
<i>(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;</i>	Section 4
<i>(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;</i>	No issues to date
<i>(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;</i>	Section 9
<i>(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts-</i> <i>(aa) can be reversed;</i> <i>(bb) may cause irreplaceable loss of resources; and</i> <i>(cc) can be avoided, managed or mitigated;</i>	Section 9
<i>(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;</i>	Section 3 Volume II: Specialist Reports
<i>(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;</i>	Section 9
<i>(viii) the possible mitigation measures that could be applied and level of residual risk;</i>	Section 9
<i>(ix) the outcome of the site selection matrix;</i>	Section 6
<i>(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and</i>	Section 6
<i>(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;</i>	Section 6 Section 7
<i>a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including -</i> <i>(i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and</i> <i>(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;</i>	Section 3 Section 9
<i>an assessment of each identified potentially significant impact and risk, including-</i> <i>(i) cumulative impacts;</i> <i>(ii) the nature, significance and consequences of the impact and risk;</i> <i>(iii) the extent and duration of the impact and risk;</i> <i>(iv) the probability of the impact and risk occurring;</i>	Section 9

Appendix 1 Requirements NEMA, 1998 (Act No. 107 of 1998)	Location in BAR
<p>(v) the degree to which the impact and risk can be reversed; (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) the degree to which the impact and risk can be avoided, managed or mitigated;</p>	
<p>where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;</p>	Section 10
<p>an environmental impact statement which contains-</p> <p>(i) a summary of the key findings of the environmental impact assessment;</p> <p>(ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and</p> <p>(iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;</p>	Section 10 Section 12 Figure 11
<p>based on the assessment, and where applicable, impact management measures from specialist reports, the recording of proposed impact management outcomes, and the impact management outcomes for the development for inclusion in the EMPr;</p>	Section 9 Appendix B: EMPr
<p>any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;</p>	Section 12
<p>a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;</p>	Section 1.4
<p>a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;</p>	Section 12
<p>where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post-construction monitoring requirements finalised;</p>	Commencement of construction will occur within 10 years of authorisation and conclude within 5 years of commencement. Post-construction monitoring requirements will be finalised within this period.
<p>an undertaking under oath or affirmation by the EAP in relation to-</p> <p>(i) the correctness of the information provided in the reports;</p> <p>(ii) the inclusion of comments and inputs from stakeholders and I&APs;</p> <p>(iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and</p> <p>(iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties; and</p>	Appendix A
<p>where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;</p>	n/a
<p>any specific information that may be required by the competent authority; and</p>	n/a

Appendix 1 Requirements NEMA, 1998 (Act No. 107 of 1998)	Location in BAR
<i>any other matters required in terms of section 24(4)(a) and (b) of the Act.</i>	n/a

3 METHODOLOGY

3.1 Specialist Study Assessment

Specialists were appointed by Arcus to provide a detailed report based on the requirements of this proposed development. The methodology of each specialist used to collate the report(s) can be seen in each Specialist Report attached to this BA as Volume II. This same specialist prepared the amendment reports of the San Kraal and Phezukomoya WEFs.

3.2 Assessment Techniques for the EIA

Each of the specialist assessments follows a systematic approach to the assessment of impacts, with the principal steps being:

- Description of existing environment/baseline conditions;
- Prediction of likely potential impacts, including cumulative impacts (both positive and negative);
- Assessment of likely potential impacts (positive and negative);
- Identification of appropriate mitigation measures; and
- Assessment of residual (potential) environmental impacts.

3.2.1 Baseline Description

In order to evaluate the potential environmental impacts, information relating to the existing environmental conditions were collected through field and desktop research; this is known as the baseline. Climate change is expected to affect the proposed development site over the lifetime of the proposed development, however, the nature, scale and severity of climate change effects are uncertain. Given this uncertainty, the existing environment is assumed to remain constant throughout the lifetime of the proposed development, and forms the current and future baseline for the impact assessments.

The baseline was used to determine the sensitivity of receptors on and near the proposed development site and what changes may take place during the construction, operation and decommissioning of the proposed development and the impacts if any, that these changes may have on these receptors.

Data was collected from public records and other archive sources and where appropriate, field surveys were carried out as detailed in the Specialist Reports (Volume II).

3.2.2 Identification of Potential Impacts

The identification of potential impacts covers the three phases of the proposed development: construction, operation and decommissioning. During each phase, the potential environmental impacts may be different.

The project team has experience from environmental studies for other projects in the locality of the proposed development as well as other WEFs. The team is, therefore, able to identify potential impacts addressed in the BA based on their experience and knowledge of the type of development proposed and the local area. Their inputs informed the scope for the BA.

Each specialist assessment considered:

- The extent of the impact (local, regional or (inter) national);

- The intensity of the impact (low, medium or high);
- The duration of the impact and its reversibility;
- The probability of the impact occurring (improbable, possible, probable or definite);
- The confidence in the assessment; and
- Cumulative impacts.

Following identification of potential environmental impacts, the baseline information was used to predict changes to existing conditions and undertake an assessment of the impacts associated with these changes.

3.2.3 Assessment of Potential Effects

The potential impact that the Grid Infrastructure may have on each environmental receptor could be influenced by a combination of the sensitivity and importance of the receptor and the predicted degree of alteration from the baseline state (either beneficial or adverse).

Environmental sensitivity (and importance) may be categorised by a multitude of factors, such as the rarity of the species; transformation of natural landscapes or changes to soil quality and land use.

The overall significance of a potential environmental impact is determined by the interaction of the above two factors (i.e. sensitivity/importance and predicted degree of alteration from the baseline).

Specialists, in their terms of references, were supplied with a standard method with which to determine the significance of impacts to ensure objective assessment and evaluation, while enabling easier multidisciplinary decision-making. The methodology³ as outlined below indicates the categories for the rating of impact magnitude and significance.

The assessment methodology that was used is in accordance with the revised 2014 EIA Regulations (as amended). The significance of environmental impacts is a function of the environmental aspects that are present and to be impacted on, the probability of an impact occurring and the consequence of such an impact occurring before and after implementation of proposed mitigation measures.

3.2.3.1 Extent (spatial scale)

L	M	H
Impact is localised within site boundary	Widespread impact beyond site boundary; Local	Impact widespread far beyond site boundary; Regional/national

3.2.3.2 Duration

L	M	H
Quickly reversible, less than project life, short term	Reversible over time; medium-term to life of project	Long term; beyond closure; permanent; irreplaceable or irretrievable commitment of resources

3.2.3.3 Intensity (severity)

Type of Criteria	Negative			Positive		
	H-	M-	L-	L+	M+	H+

³ Adapted from T Hacking, AATS – Envirolink, 1998: An innovative approach to structuring environmental impact assessment reports. In: IAIA SA 1998 Conference Papers and Notes.

Qualitative	Substantial deterioration death, illness or injury, loss of habitat /diversity or resource, severe alteration or disturbance of important processes.	Moderate deterioration, discomfort, Partial loss of habitat /biodiversity /resource or slight or alteration	Minor deterioration, nuisance or irritation, minor change in species/habitat/diversity or resource, no or very little quality deterioration.	Minor improvement, restoration, improved management	Moderate improvement, restoration, improved management, substitution	Substantial improvement, substitution
Quantitative	Measurable deterioration Recommended level will often be violated (e.g. pollution)	Measurable deterioration Recommended level will occasionally be violated	No measurable change; Recommended level will never be violated	No measurable change; Within or better than recommended level.	Measurable improvement	Measurable improvement

3.2.3.4 Probability of Occurrence

L	M	H
Unlikely; low likelihood; Seldom No known risk or vulnerability to natural or induced hazards.	Possible, distinct possibility, frequent Low to medium risk or vulnerability to natural or induced hazards.	Definite (regardless of prevention measures), highly likely, continuous High risk or vulnerability to natural or induced hazards.

3.2.3.5 Status of the Impact

The specialist should describe whether the impact is positive, negative or neutral for each parameter. The ranking criteria are described in negative terms. Where positive impacts are identified, use the opposite, positive descriptions for criteria.

3.2.3.6 Degree of Confidence in Predictions:

The degree of confidence in the predictions, based on the availability of information and specialist knowledge, is to be stated.

3.2.3.7 Consequence: (Duration x Extent x Intensity)

Having ranked the severity, duration and spatial extent, the overall consequence of impacts is determined using the following qualitative guidelines:

Intensity = L				
Duration	H			
	M			Medium
	L	Low		
Intensity = M				
Duration	H			High
	M		Medium	
	L	Low		
Intensity = H				

Duration	H			
	M			High
	L	Medium		
		L	M	H
Extent				

Positive impacts are ranked in the same way as negative impacts but result in high, medium or low positive consequence.

3.2.3.8 Overall Significance of Impacts

Combining the consequence of the impact and the probability of occurrence provides the overall significance (risk) of impacts.

PROBABILITY	Definite Continuous	H	MEDIUM		HIGH
	Possible Frequent	M		MEDIUM	
	Unlikely Seldom	L	LOW		MEDIUM
			L	M	H
CONSEQUENCE					

3.2.3.9 Mitigation Measures

Measures to avoid, reduce or remedy significant adverse impacts were identified; these are termed mitigation measures. Where the assessment process identified any significant adverse impacts, mitigation measures were proposed to reduce those impacts where practicable. Such measures include the physical design and operational measures. Design alterations such as the route of the servitude to avoid certain sensitive receptors are mitigation embedded into the design of the proposed development, i.e., embedded mitigation.

This strategy of avoidance, reduction and remediation is a hierarchical one which seeks:

- First to avoid potential impacts;
- Then to reduce those which remain; and
- Lastly, where no other measures are possible, to propose compensatory measures.

Each specialist consultant identified appropriate mitigation measures (where relevant).

3.3 Cumulative Impact Assessment

In accordance with the EIA Regulations, as amended, consideration is also given to 'cumulative impacts'.

By definition, cumulative impacts are those that result from incremental changes caused by past, present or reasonably foreseeable future actions together with the proposed development. Cumulative impacts are the combined impacts of several developments that are different to the impacts from the developments on an individual basis.

For the purpose of this assessment, cumulative impacts are defined and have been assessed in the future baseline scenario, i.e. cumulative impact of the proposed

development = change caused by the proposed development when added to the cumulative baseline (which includes all other identified development). In the cumulative assessment, the effect of adding the proposed development to the cumulative baseline is assessed.

The development sites included in the assessment of cumulative impacts has been based on the knowledge and status of the surrounding areas at the time of writing the BA Report.

Each of the specialists used existing publicly available information for the developments that occur within 35 km of the Grid Infrastructure, in order to assess the cumulative impacts. Cumulative impacts that have been considered are those residual impacts that remain medium to high post-mitigation and is highly qualitative and based on specialists' knowledge.

4 PUBLIC PARTICIPATION PROCESS

This Public Participation Process follows the requirements of Regulation 41, 42, 43, and 44 of GN R. 326 of the NEMA Environmental Impact Assessment Regulations, 2014, as amended promulgated under Section 24 (5) of the National Environmental Management Act (Act 107 of 1998 - NEMA), as amended.

The primary aims of the public participation process are:

- To inform Interested and Affected Parties (I&APs) of the proposed development;
- To identify issues, comments and concerns as raised by I&APs;
- To promote transparency and an understanding of the project and its potential consequences;
- To facilitate open dialogue and liaison with all I&APs;
- To assist in identifying potential environmental (biophysical and socio-economic) impacts associated with the proposed development; and
- To ensure that all I&AP issues and comments are accurately recorded, addressed and documented in a Comments & Response Report.

The I&AP database of the authorised San Kraal WEF and Phezukomoya WEF (Arcus, 2018) was used as the baseline for this BA report. The Socio-economic specialist study included consultation and interviews with Interested and Affected Parties (I&APs) and other key informants or stakeholders as necessary in order to assess social impacts.

As part of the Initial Notification, site notices were erected, and posters were put up in the town of Noupoot and Middelburg. Adverts were placed in the same newspapers utilised during the previous EIA, i.e. The Herald and Graaff Reinet (Appendix C).

Following the initial notification, all I&APs have been notified of the submission and availability of this BA Report. Notification letters were sent to the I&APs via electronic (e-mail) and registered mail.

There will be a 30-day public commenting period during which I&APs are encouraged to submit comments to the EAP. During the public commenting period, this BA Report will be made publicly available in hardcopy at the Noupoot Public Library and digitally on the Arcus website. Registration of I&APs will continue throughout the process - the I&AP database will be updated accordingly, and the updated I&AP database will be provided in the Final BA Report.

All comments will be included in a Comments and Responses Report and responded to and addressed therein by the project team - EAP, Applicant and Specialists as applicable. The Comments and Responses Report will be provided with the Final BA Report.

5 NEED AND DESIRABILITY

The proposed grid connection is required to transfer electricity generated by the proposed split(s) of the authorised San Kraal WEF and Phezukomoya WEF to the national grid. The proposed grid connection, therefore, relies on authorisation of the amendment applications for the authorised WEFs to move forward.

The need for the proposed grid connection development is to transfer electricity from the proposed WEFs to the national grid. The proposed grid connection is necessary for the WEF projects and as such, should be viewed in the context of a renewable energy development. Renewable energy is supported in terms of meeting the country's climate change goals, and in terms of reducing the country's dependence on fossil fuels as the main source of meeting the country's electricity requirements.

Both national and provincial policies and planning documents support the development of renewable energy facilities. The development of and investment in renewable energy is supported by the National Development Plan (NDP), New Growth Path Framework and National Infrastructure Plan, which all make reference to renewable energy. At a provincial level, the development of renewable energy is supported by the Northern Cape Provincial Growth and Development Strategy and Northern Cape Provincial Spatial Development Framework, as well as the Eastern Cape Provincial Development Plan (2014) and the Eastern Cape Climate Change Response Strategy. The need and desirability for these types of developments play a role in meeting energy and climate change targets and also provide a socio-economic boost at the local level in areas that are in need of it.

The proposed development site is currently used for low-intensity grazing and has little potential for other types of land use. Grazing could continue on the site during the construction and operation of the development. Therefore, the change to a mixed land use of grazing and renewable energy could be considered as an improvement.

A current requirement of the REIPPPP is that in the development of any WEF and associated infrastructure, the local economy must benefit through employment opportunities, skills development, and the development or enhancement of community infrastructure. The cumulative effect of the proposed development and other developments in the area has the potential to result in high significance positive socio-economic opportunities for the region.

The establishment of renewable energy facilities in the ULM and IYLM may place pressure on local services, specifically medical, education and accommodation. This pressure will be associated with the potential influx of workers to the area associated with the construction and operational phases of renewable energy projects proposed in the area. The potential impact on local services can be mitigated by employing local community members. With effective mitigation, the impact is rated as Low significance.

This impact should also be viewed within the context of the potential positive cumulative impacts for the local economy associated with the establishment of renewable energy as an economic driver in the area.

In addition to the potential negative impacts, the establishment of renewable energy projects in the area also has the potential to create a number of socio-economic opportunities for the ULM and IYLM, which, in turn, will result in a positive social benefit. The positive cumulative impacts include creation of employment, skills development and training opportunities, and the creation of downstream business opportunities. The Community Trusts associated with the project will also create significant socio-economic benefits. This benefit is rated as High significance with enhancement.

6 ASSESSMENT OF ALTERNATIVES

Alternatives are different means of meeting the general purpose and need for a proposed development and may include alternative sites, alternative layouts/designs, alternative technologies and/or the No Development alternative.

The EIA Regulations, as amended, indicate that alternatives that are considered in an assessment process should be reasonable and feasible and that I&APs should be provided with an opportunity to provide inputs into the process of formulating alternatives.

The assessment of alternatives should, at a minimum, include the following:

- The consideration of the No Development alternative as a baseline scenario;
- A comparison of reasonable and feasible selected alternatives; and
- The provision of reasons for the elimination of an alternative.

A comprehensive alternative assessment was undertaken, in terms of site selection process and grid connection alternatives, as part of the San Kraal WEF (DEA Ref. No. 14/12/16/3/3/2/1029 and 14/12/16/3/3/2/1029/AM1) and Phezukomoya WEF (DEA Ref. No. 14/12/16/3/3/2/1028 and 14/12/16/3/3/2/1028/AM1) applications. Site selection alternatives will not be discussed in this BA report as authorisation as per the above was granted for the proposed development to take place on the land parcels, so no further alternative site selection is required.

It must be noted that there are no alternatives for the Grid Infrastructure and all 3 grid corridor options are considered the best technical routes to connect to the proposed Eskom Hydra D substation. The applicant is seeking authorisation for all the grid corridor options to provide Eskom with the opportunity to decide which grid connection option will be best suited, upon construction, to connect to the proposed Eskom Hydra D substation. The grid connection routes of all other applications in the area must also be considered. The grid connection corridors which will be assessed and discussed in Section 6.3, are defined as 'proposed' and 'approved'. The applicant is applying for all grid connection options in order to facilitate future connecting options to the Eskom Hydra D substation, according to Eskom requirements and considering other IPPs in the area.

The Grid Infrastructure was provided to the specialists for their impact assessment.

6.1 The No Development Scenario

The No Development scenario assumes that the proposed development does not proceed. It is equivalent to the future baseline scenario in the absence of the proposed development.

Relative to the Grid Infrastructure authorisation, the main implication of the No Development scenario is that the split WEFs cannot be constructed. Evacuation of the electricity generated by the splitting of the authorised WEFs is necessary for the project to proceed. The result will include the following:

- There is no change in the current landscape or environmental baseline;
- Whilst no WEF development will occur on site, other wind energy projects go ahead as planned for other areas locally;
- There is no opportunity for additional employment (albeit temporary) in the local area where job creation is identified as a key priority; and
- The local Economic Development benefits associated with the WEF development's REIPPPP commitments will not be realised.

South Africa faces serious electricity and water shortages due to its heavy dependency on fossil fuels and increases in demand. There is, therefore, a strong need for additional electricity generation options to be developed and to diversify the sources of energy that feed into the national grid.

The purpose of the proposed Grid Infrastructure is to export the renewable energy, generated by the WEFs, to the national grid. Many other socio-economic and environmental benefits will result from this, such as:

- Reduced air pollution emissions - burning fossil fuels generates CO₂ emissions which contribute to global warming. In addition, burning fossil fuels produces emissions of sulphurous and nitrous oxides which are hazardous to human health and impact on ecosystem stability;
- Water resource-saving - conventional coal-fired power stations use large quantities of water during their cooling processes. WEFs require limited amounts of water during construction and almost no water during operation. As a water-stressed country, South Africa should be conserving such resources wherever possible;
- Improved energy security - renewables can often be deployed in a decentralised way close to consumers improving grid strength while reducing expensive transmission and distribution losses. They also contribute to a diverse energy portfolio;
- Exploit significant natural renewable energy resources - biomass, solar and wind resources remain largely unexploited;
- Sustainable energy solution - the uptake of renewable energy technology addresses the country's energy needs in a sustainable manner, generating electricity to meet growing demands in a manner which is sustainable for future generations.
- Employment creation and other local economic benefits associated with support for a new industry in the South African economy.

Based on the above, the 'No Development' alternative, although feasible, is not the preferred alternative.

6.2 Electrical Grid Connection Corridors

The applicant is applying for authorisation of three grid connection corridors which will export electricity to the SK-PH collector substation or directly to the proposed Grid Hydra D substation. One of the three proposed corridors - namely the HBH Corridor - passes through an area not previously assessed during the prior EIA (Arcus 2018). Thus, this corridor was assessed in full by the specialists.

The remaining two out of the three corridors are discussed below as they remain options to export electricity. A description of all three grid connection corridors is provided and illustrated in Figure 6.1.

Proposed Corridor - 'HBH Corridor'

The proposed HBH Corridor of 1 km, 500 m either side of the centreline, of 132 kV overhead powerline ('OHL') is located to the south and partly outside of the San Kraal and Phezukomoya WEF site boundaries. The HBH corridor will transfer electricity south of the WEF sites from the San Kraal substation to the proposed SK-PH collector substation or directly to the Eskom Hydra D substation.

The proposed SK-PH collector substation is located on Farm RE/118 (Winterhoek) which belongs to Ms Vivian van der Merwe.

The proposed HBH corridor is ~24.8 km and affects properties which belong to four landowners, all of which are landowners of the authorised WEFs site boundaries:

- Farms 15/182; 47/182 and 14 (Hartebeeshoek), which belong to the Umsobomvu LM, and would be affected over a distance of 1.5 km;
- Farm RE/13 (Beskuitfontein), which belongs to Mr Pieter Erasmus, over a distance of 160 m;
- Farms 11/1 (De Rust), which belong to Mr Jean Gillmer, over a distance of ~4.6 km;

- Farms RE/118 (Winterhoek) RE/135 and RE/136 (Bergplaas), which both belong to Ms Vivian van der Merwe, over a distance of ~10.4 km.

Farms which fall outside of the approved WEF site boundaries but owned by a landowner that is part of the authorised WEF site boundaries is:

- Farm 4/11; RE/8/11; RE/6; 5 (Beskuitfontein), which belongs to Mr Pieter Erasmus, over a distance of ~8.2 km.

The HBH Corridor would feed out from the SSW of the San Kraal substation on Hartebeeshoek (15/182) and continue in a southerly direction for ~6 km on De Rust (11/1), located to the east of the N9. Still continuing in a southerly direction ~5km through Beskuitfontein (4/11 and RE/8/11) the line segment would now be located outside of the approved WEF site boundaries. As the line crosses to Beskuitfontein (RE/6 and 5), it changes to a north-west direction for ~3.4 km and a further ~2.4 km wherein the approved WEF site boundaries (Farm RE/118 Winterhoek) it is proposed to feed into the SK-PH collector substation or continue for ~10.4km in an unbroken line due south-west across Winterhoek to the boundary with Bergplaas, across a succession of hills and lower-lying areas. The extreme south-eastern portion of RE/118 north of the N10 is affected. The alignment traverses the N10 across a broad low-lying area 2.2 km north-east of the farmstead on Winterhoek, along a straight ~3.8 km stretch of the N10. This portion of the N10 is not currently affected by infrastructure. Most of the alignment of the line portion across the portion of RE/118 south of the N10 would affect broken terrain in the central portion of Winterhoek. The alignment would pass ~1.2 km to the south-east of the inhabited farmhouse on Winterhoek. An intervening koppie would screen the line from Winterhoek farmstead.

The terminal portion of the alignment across Bergplaas to the south of Winterhoek affects very broken terrain in the central portion of the property, just to the west of the farm access road from Winterhoek. The line would feed into the Eskom Hydra D substation located immediately across the south-western boundary point of RE/135.

San Kraal Corridor - Approved

The San Kraal Corridor, as authorised (DEA Ref. No. 14/12/16/3/3/2/1029 and 14/12/16/3/3/2/1029/AM1) is to be used for the transfer of electricity from the authorised San Kraal substation to the proposed SK-PH collector substation or directly to the Eskom Hydra D substation.

The San Kraal corridor is ~23 km and affects properties which belong to five landowners, namely:

- Farms 15/182; 47/182 (Hartebeeshoek), which belong to the Umsobomvu LM, and would be affected over a distance of 2.4 km;
- Farm RE/13 (Beskuitfontein), which belongs to Mr Pieter Erasmus, over a distance of 450 m;
- Farms 2; 3/1; 11/1; 18/1 (De Rust), which belong to Mr Jean Gillmer, over a distance of ~5 km;
- Farm RE/1/1 (Vrede), which belongs to Mr Tollie Jordaan, over a distance of ~4.1 km; and
- Farms RE/118 (Winterhoek) RE/135 and RE/136 (Bergplaas), which both belong to Ms Vivian van der Merwe, over a distance of 11.1 km.

Phezukomoya Corridor - Approved

The Phezukomoya Corridor, as authorised (DEA Ref. No. 14/12/16/3/3/2/1028 and 14/12/16/3/3/2/1028/AM1) is to be used for the transfer of electricity from the authorised Phezukomoya substation to the proposed SK-PH collector substation or directly to the Eskom Hydra D substation.

The authorised Phezukomoya Corridor is ~16.3 km and affects properties belonging to two landowners, namely:

- Farms RE/13/1 and 21/1 (Edendale), which belong to Jean Gillmer, over a distance of ~1.4 km;
- Farm RE/1/1 (Vrede), which belongs to Jean Gillmer, over a distance of ~3.7 km; and
- Farms RE/118 (Winterhoek), RE/135 and RE/136 (Bergplaas), over a distance of 11.2 km.

6.2.1 Grid Connection Technology Alternatives

The main purpose of the proposed Grid Infrastructure is to connect the proposed amendment WEF(s), namely San Kraal Split 1, Hartebeesthoek East, Phezukomoya Split 1 and Hartebeesthoek West, to the national grid. Note that technologies change on a regular basis and the most reliable, safest and cost-effective technology that is available and that meets industry standards will be used. Alternatives are proposed for the type of structures which will support the overhead lines. These may include:

- Concrete, steel or wood monopoles (preferred);
- Guy line supported steel structures (small footprint);
- Freestanding metal lattice towers; or
- Multi-pole structures such as H-towers or K-towers.

Refer to **Plates 6-1 to 6 -4** for typical examples of these tower types. All aspects of the grid connection, including powerline and supporting structures, would need to adhere to industry standards.



Plate 6-1: Concrete, steel or wood monopoles.



Plate 6-2: Guy line supported steel structures.



Plate 6-3: Freestanding metal lattice towers.



Plate 6-4: Multi-pole structures such as H-towers or K-towers.

Alternative 1 (preferred alternative)

The preferred supporting structure would be a concrete or steel monopole (Plate 6-1) as these are the Eskom standard, are cost-effective and what was approved for the San Kraal WEF and Phezukomoya WEF. This preferred structure would be subject to line design and engagement with Eskom.

Alternatives 2-4

Freestanding metal lattice towers or guy-line supported steel structures would be beyond the need of the conductor in this case (Plate 2 - 4). In addition, these structures are expensive and therefore not considered reasonable or feasible for the proposed application.

6.3 Alternative Assessment Summary

Based on feasibility and the assessment of alternatives, it was decided that the proposed Grid Infrastructure be authorised and located within the authorised WEF site boundaries, and a portion to the south-east thereof, located in the Eastern and Northern Cape Provinces. In screening the EIA process for the authorised San Kraal WEF and Phezukomoya WEF (Arcus, 2018), the design for the grid connection was assessed taking into consideration environmental constraints based on the specialist studies of the EIA processes (and included no-go areas based on avifaunal, bat, as well as ecological and visual constraints). A layout for the Grid Infrastructure was then designed based on these constraints, which was provided to the specialists of this BA process, to use as part of the impact assessment. This Final Mitigated Layout is submitted to the DEA (Figure 6.1), and if approved, this layout will be further developed, through micro siting of pylons, with the assistance from the relevant specialists.

It must be noted that there are no alternatives for the Grid Infrastructure and all 3 grid corridor options are considered the best technical routes to connect to the proposed Eskom Hydra D substation. The applicant is seeking authorisation for all the grid corridor options to provide Eskom with the opportunity to decide which grid connection option will be best suited to connect to the proposed Eskom Hydra D substation. The grid connection routes of all other applications in the area must also be considered.

7 THE PROPOSED DEVELOPMENT DESCRIPTION

The BA application is for the authorisation of the 132 kV HBH Corridor to transfer electricity from the San Kraal Substation to the proposed SK-PH collector substation or directly to the Eskom Hydra D Substation.

Further to the authorisation of the HBH Corridor, the applicant is also applying for the authorisation of infrastructure, which is described below. The specialist studies included the impact assessment of these infrastructures.

SK-PH Collector substation

The proposed SK-PH collector substation has been mentioned earlier in the report. The substation is proposed to be located on RE/118, within the approved Phezukomoya WEF site, ~10.4 km north-east of the proposed Eskom Hydra D substation. If this SK-PH collector substation is approved, electricity will be transferred to this substation from the three corridors and then transferred via a single 132 kV line to the Eskom Hydra D substation.

Additional Access Points

Access Point A and B is proposed for access onto the WEF sites off the N9. Access Point C requires authorisation specifically for the substation and grid access (on both sides of the road) when the line is built.

Expansion to the San Kraal substation

The applicant also wants to expand the San Kraal substation to allow for increased electricity transfer.

Temporary Batching plant

A temporary batching plant (namely 'Batching Plant 2') requires authorisation. It is proposed as part of the construction camp area. The WEF development would require on-site bulk storage of aggregate, cement and sand, all of which would be imported to the site from commercial sources, i.e. no mining or crushing of materials is proposed. Details of the batching plant are not known at this stage but will all be contained within the approved Phezukomoya WEF site. It is anticipated that at the peak of construction, the batching plant will operate 24 hours a day.

132 kV Overhead Power Lines (OHL)

The applicant is applying for the proposed establishment of up to eight 132 kV OHLs dependent on which WEF project phase goes ahead first, and the best possible evacuation on figuration. These proposed corridors follow approved corridors for much of their length, and are located within the authorised WEFs site boundaries. Two 132 kV OHLs are proposed for each proposed split WEF and will transfer electricity from the WEF's on-site substation(s) either to the San Kraal substation or the Phezukomoya substation. The routes of each WEF grid connection is discussed in Section 7.1 below.

Phezukomoya on-site substation

The proposed on-site substation is located ~3.3 km east of the Phezukomoya substation and is located within the approved Phezukomoya WEF site. This proposed substation is required to transfer electricity via a proposed 132 kV OHL to the Phezukomoya substation or via a proposed 132 kV OHL to the San Kraal substation.

Hartebeesthoek West switching station

This switching station is not new, however, has moved slightly from the approved location as part of the original EA for Phezukomoya WEF. It is now located ~2.5 km south-east of the San Kraal substation.

San Kraal Split 1 Step-Up substation

The proposed step-up substation is located ~2 km north-east of the San Kraal substation and is located within the approved San Kraal WEF site. This proposed substation is required to transfer electricity via a proposed 132 kV OHL to the San Kraal substation.

Hartebeesthoek East On-site substation

The proposed on-site substation is located ~2 km south-east of the San Kraal substation and is located within the approved San Kraal WEF site. This proposed on-site substation is required to transfer electricity via a proposed 132 kV OHL to the San Kraal substation or via a proposed ~ 9.8 km 132 kV OHL to the Phezukomoya substation.

7.1 Grid Connection Routes

The grid connection routes (namely, Options A to C) are described below and have been split by each WEF.

7.1.1 Phezukomoya Split 1 WEF Grid Options

Option A (Figure 7.1): Electricity is transferred from the approved Phezukomoya switching station (west of the approved Phezukomoya substation) and from the proposed Phezukomoya split 1 substation (east of the approved Phezukomoya substation) to the approved Phezukomoya substation. From the approved Phezukomoya substation the electricity is transferred by the approved Phezukomoya Corridor to the SK-PH collector substation. From the SK-PH collector substation, electricity will be transferred to the Eskom Hydra D substation via a 132 kV OHL.

Option B (Figure 7.1): Electricity is transferred from the approved Phezukomoya switching station (west of the approved Phezukomoya substation) and from the proposed Phezukomoya split 1 substation (east of the approved Phezukomoya substation) to the approved Phezukomoya substation. From the approved Phezukomoya substation the electricity is transferred by the approved Phezukomoya Corridor to the Eskom Hydra D substation.

Option C (Figure 7.1): Electricity is transferred from the approved Phezukomoya switching station (west of the approved Phezukomoya substation) and from the proposed Phezukomoya split 1 substation (east of the approved Phezukomoya substation) to the approved Phezukomoya substation. From the approved Phezukomoya substation electricity is transferred to the San Kraal substation via a 132 kV OHL. From the San Kraal substation, the electricity is transferred by the approved San Kraal Corridor to the Eskom Hydra D substation or via the proposed southerly HBH Corridor to the Eskom Hydra D substation.

7.1.2 Hartebeesthoek West WEF Grid Options

Option A (Figure 7.2): Electricity is transferred from the HBH West switching station to the San Kraal substation via a proposed 132 kV OHL. From the San Kraal substation, the electricity is transferred by the approved San Kraal Corridor to the SK-PH collector substation or via the proposed southerly HBH Corridor to the SK-PH collector substation. From the SK-PH collector substation, electricity will be transferred to the Eskom Hydra D substation via a 132 kV OHL.

Option B (Figure 7.2): Electricity is transferred from the HBH West switching station to the San Kraal substation via a proposed 132 kV OHL. From the San Kraal substation, the electricity is transferred to the Phezukomoya substation via a proposed 132 kV OHL. From the Phezukomoya substation, the electricity is transferred by the approved Phezukomoya Corridor to the Eskom Hydra D substation.

Option C (Figure 7.2): Electricity is transferred from the HBH West switching station to the San Kraal substation via a proposed 132 kV OHL. From the San Kraal substation, the electricity is transferred by the approved San Kraal Corridor to the Eskom Hydra D substation or via the proposed southerly HBH Corridor to the Eskom Hydra D substation.

7.1.3 San Kraal Split 1 WEF Grid Options

Option A (Figure 7.3): Electricity is transferred from the approved San Kraal switching station via an approved 132 kV OHL, and from the proposed step-up substation via a proposed 132 kV OHL to the San Kraal substation. From the San Kraal substation, the electricity is transferred by the approved San Kraal Corridor to the SK-PH collector substation or via the proposed southerly HBH Corridor to the SK-PH collector substation. From the SK-PH collector substation, electricity will be transferred to the Eskom Hydra D substation via a 132 kV OHL.

Option B (Figure 7.3): Electricity is transferred from the proposed step-up substation to the San Kraal substation via a proposed 132 kV OHL. From the San Kraal substation, the electricity is transferred via a proposed westerly 132 kV OHL to the approved Phezukomoya substation. From the approved Phezukomoya substation the electricity is transferred by the approved Phezukomoya Corridor to the Eskom Hydra D substation.

Option C (Figure 7.3): Electricity is transferred from the proposed step-up substation to the San Kraal substation via a proposed 132 kV OHL. From the San Kraal substation, the electricity is transferred by the approved San Kraal Corridor to the Eskom Hydra D substation or via the proposed southerly HBH Corridor to the Eskom Hydra D substation.

7.1.4 Hartebeesthoek East (HBH East) WEF Grid Options

Option A (Figure 7.4): Electricity is transferred from the proposed HBH East on-site substation to the San Kraal substation via a proposed 132 kV OHL. From the San Kraal substation, the electricity is transferred by the approved San Kraal Corridor to the SK-PH collector substation or via the proposed southerly HBH Corridor to the SK-PH collector substation. From the SK-PH collector substation, electricity will be transferred to the Eskom Hydra D substation via a 132 kV OHL.

Option B (Figure 7.4): Electricity is transferred from the proposed HBH East on-site substation to the approved Phezukomoya substation via a proposed 132 kV OHL. From the approved Phezukomoya substation the electricity is transferred by the approved Phezukomoya Corridor to the Eskom Hydra D substation.

Option C (Figure 7.4): Electricity is transferred from the proposed HBH East on-site substation to the San Kraal substation via a proposed 132 kV OHL. From the San Kraal substation, the electricity is transferred by the approved San Kraal Corridor to the Eskom Hydra D substation or via the proposed southerly HBH Corridor to the Eskom Hydra D substation.

7.2 Grid Connection Summary

All proposed grid corridor options are considered the best technical routes to connect to the proposed Eskom Hydra D substation. The applicant is seeking authorisation for all the grid corridor options to provide Eskom with the opportunity to decide which grid connection option will be best suited, upon construction, to connect to the proposed Eskom Hydra D substation. The grid connection routes of all other applications in the area must also be considered. At this stage, it appears unlikely that all proposed grid connection routes described above will be constructed. However all routes are being applied for to facilitate selection of the preferred grid connection route.

8 BASELINE ENVIRONMENT DESCRIPTION

8.1 Soil

The area consists of slightly undulating to steeply sloping topography, with slopes of less than 10 % over much of the western and central parts of the area but becoming as steep

as 80 - 100 % on the escarpment zones of the upper mountain slopes. The altitude of the area is between 1 500 and 1 700 metres in most of the area, but the highest parts are close to 1 800 metres. Current land use is dominantly natural vegetation (presumably used for extensive grazing), with a significant proportion of exposed rock.

The climate of the area mostly has summer rainfall distribution, but the annual average is low, at around 345 mm per year, although this might be slightly higher in the higher parts of the landscape⁴. Temperatures will be cool to cold in winter, with frequent frost, often heavy between May and September.

The area is underlain by mudstone of the Beaufort and Tarkastad Groups, Karoo Sequence, along with small areas of dolerite intrusions.

The area under investigation is covered by the following five land types:

- Da77 (Duplex soils⁵, mostly red)
- Fb174, Fb259, Fb373 (Shallow soils, occasionally calcareous)
- Ib316 (Shallow soils with much rock)

8.2 Aquatic

The proposed development occurs within the catchments associated with the Drought Corridor Ecoregion, spanning the boundary between the Orange and Mzimvubu/Tsitsikamma Water Management Areas.

The infrastructure options are located within or span in the following Subquaternary catchments:

- *Q11C – Rooispruit River*
- *Q14B - Droë River*
- *D32G – Noupoortspruit*
- *D32C – Kleinseekoei*

These catchments are characterised by several perennial watercourses and drainage lines associated with these mainstem systems listed above. The larger systems are characterised by alluvial riverbeds / washes. Most of these showing signs of erosion, with large head cuts forming in the upper catchment / foothills of these systems located within the study area. The proposed supporting infrastructure is, however, located on the higher-lying ridges away from any important or mainstem rivers / streams.

The transmission line corridors similarly span several systems, dominated by alluvial sediment transport systems, but also show some degree of alteration due to local road networks and grazing. The greatest current impact within the whole study area is the creation of dams, which are contributing to habitat fragmentation within the watercourses as well as changes to the hydrological regimes of the riverine systems.

In terms of the National Freshwater Ecosystems Priority Areas (NFEPA) assessment, all of the watercourses within the site were assigned condition scores between AB and C, indicating that they largely intact or moderately modified, but still with biological function. This is largely due to these catchments falling with the headwaters of the Gariep (Orange) River, and thus some were earmarked as upstream support areas for important fish habitats located in the Gariep River, by the NFEPA assessment.

It is anticipated that all towers could span these systems including their respective riparian zones (i.e. the 32m buffer). The riparian systems are mostly limited to a grass species associated with watercourses, but no facultative or obligate species wetland species were

⁴ Koch, F.G.L., 2012. Land types of the maps 3024 Colesberg, 3122 Victoria West and 3124 Middelburg. Climate. Mem. Nat. Agric. Res. S. Afr. No. 18. ARC-Institute for Soil, Climate and Water, Pretoria.

⁵ Soils within a relatively sandy topsoil horizon abruptly overlying a structured, clayey subsoil horizon

found, i.e. species within any areas where soil moisture levels are higher, e.g. along roadsides were observed. These species included *Tenaxia disticha* (Mountain wire grass previously *Merxmerulla disticha*), *Miscanthus ecklonii* (previously *Miscanthus capensis*), *Agrostis lachnantha*. The only obligate tree species found included Willow trees (*Salix mucronata*) along the transmission line routes. The only well-defined riparian system was located on a tributary of the Noupootspruit River, which was shown a high degree of Sweet thorn (*Vachellia karroo*) encroachment. No new direct impacts on this system are anticipated as the Oorlogskloof - the access road to the WEF - is already constructed and was used by the Noupoot WEF.

According to the National Freshwater Ecosystems Priority Area (NFEPA) wetland data, no natural wetlands occur within the study area. The waterbodies identified are artificial or human-made systems - this was verified during the site visit.

Any activities within watercourses or the 32 m buffer thereof (or the 1:100 flood line, whichever is the greatest) will require a Water Use License (possible General Authorisation) should any structures (e.g. transmission line towers or the new watercourse crossings) be placed within these zones.

8.3 Ecology

According to the national vegetation map, four vegetation types occur within the study area. The majority of the high-lying ground in the east of the site falls within the Karoo Escarpment Grassland vegetation type, with Tarkastad Montane Shrubland on the adjacent slopes. The west of the site is dominated by Besemkaree Koppies Shrubland on the slopes and Eastern Upper Karoo on the plains and flatter plateaus. The slopes along the grid connection corridors to the proposed Eskom Hydra D substation consist of Besemkaree Koppies Shrubland, while the plains are also classified as Eastern Upper Karoo.

There is a relatively low number (13) of plant species of conservation concern known from the area, but given the low number of records there are likely to be additional species present as well. Species which can be confirmed present in the area include *Anacampseros subnuda subsp. lubbersii* (Vulnerable), *Boophone disticha* (Declining) and *Pelargonium sidoides*, which is listed as Declining on account of heavy harvesting pressure for use in herbal and traditional medicine. This species is common in the higher-lying grasslands of the site. Listed and protected species are usually confined to specific habitats such as wetlands and rock pavements which occur mostly around the edge of the plateau areas or other exposed ridges within the site.

At least 50 mammal species potentially occur at the site. Due to the diversity of habitats available, which includes rocky uplands and ridges, some small wetlands areas, as well as open plains and low shrublands, the majority of species with a distribution that includes the site are likely to be present in at least part of the broader site. The mammalian community is therefore relatively rich, and due to the remote and inaccessible nature of large parts of the area, current disturbance levels are generally relatively low.

There is a wide range of habitats for reptiles present at the site, including rocky uplands and cliffs, open flat and lowlands and densely vegetated areas. As a result, the site is likely to have a relatively rich reptile fauna which is potentially composed of 2 tortoise species, 15 snakes species, 16 lizard species and skinks, 1 chameleon and 5 gecko species. The rocky outcrops are of above-average sensitivity for reptiles due to the likely presence of a variety of associated species and general shelter and cover provided by these areas. Similarly, the more-densely vegetated wetlands and kloofs are also likely to be of significance. While no snakes were found during the site visit, which can probably be ascribed to the dry conditions, a variety of lizards and skinks were captured or observed and proved to be very abundant in some areas. The flat mudstone rocks that characterise the high-lying plateau areas create an abundance of narrow crevices which are particularly

attractive for reptiles. Species observed include Karoo Girdled Lizard, Ground Agama, Rock Agama, Spotted Sand Lizard, Burchell's Sand Lizard, Rock Monitor and Red-sided Skink.

Although there are no perennial rivers within the site, there are several areas where amphibians are present and breeding. There are a number of farm dams distributed across the site with frogs present as well as pools in rocky reaches of the streams which offer breeding opportunities. In particular, there is narrow gorge on the eastern margin of the plateau of the San Kraal site, which contains springs that maintain pools within the stream bed that contain a variety of frogs and is identified as an important area for frogs at the site. This area has been classified as a no-go area as such perennial springs are rare in the landscape and should be protected from impact.

A small portion of the eastern section of the San Kraal WEF is located within a Tier 1 CBA. The distal section of the new proposed power line route towards the new collector substation and the Eskom Hyrda D substation are within a Tier 2 CBA and an NC-PAES. This raises the potential for negative impact on the CBA and associated biodiversity due to the development. The primary drivers for the CBAs in the area is related to the maintenance of ecosystem processes and not to protect biodiversity pattern as the area does not have any features of known high significance in this regard. The low overall footprint of the development within these CBAs and NPAES Focus Areas would not compromise the ecological functioning or the long-term conservation value of these area with the result that this impact is considered low and acceptable.

8.4 Bats

The main potential and direct impact of grid connection lines to bats will be the collision of bats with the powerline cables. These collisions will be limited to fruit bats which do not echolocate and hence may not be able to see (or hear returning echoes from) the powerline cables and avoid them, resulting in potential mortality. Insectivorous bats, which do echolocate, are able to detect powerline cables and to avoid them, making mortality unlikely. No fruit bats were observed at the proposed development sites during the pre-construction bat monitoring (carried out by Animalia between July 2015 and September 2016). Further, the distributions of fruit bat species in South Africa do not overlap with the proposed development. Therefore, it is unlikely that there will be interactions between fruit bats and the grid connection lines of the proposed wind farms, eliminating the risk of mortality to fruit bats.

Indirect impacts of the grid connection relate to the alternation of habitat needed when the pylon towers are installed. This impact is low because the footprint of such development is limited. Provided that roosts are not destroyed during the construction process (for example, from blasting), no mitigation measures are required. No active bat roosts were found during the pre-construction bat monitoring, and therefore the risk of destroying roosts is low.

No further impact assessment was required for bats.

8.5 Bird

The study area is not located within an Important Bird Area (IBA). The border of the nearest Important Bird Area is the Platberg Karoo Conservancy IBA SA037, located approximately 19 km from the proposed SK-PH collector substation.

The San Kraal substation, where the proposed HBH Corridor starts, is located on a grassy plateau with scattered rocks. From there the route drops away westwards down an escarpment consisting of steep, boulder-strewn slopes and exposed rocky ridges. From the bottom of the escarpment, it extends westwards across a grassy plain with scattered shrubs for about 6 km, before it moves into broken, hilly terrain again for about 7 km where it

terminates at the proposed SK-PH collector substation 5 km away from the Eskom Hydra D substation. The other proposed 132 kV lines are situated on top of the plateau, with some extending westwards down the escarpment into broken, hilly terrain in the west of the study area.

All the natural vegetation types in the study area can be collectively classified as Grassy Karoo, which is described as an ecological transition zone between the Grassland and Nama Karoo biomes. Priority species associated with Grassy Karoo which could potentially occur in the study area are the nomadic Ludwig's Bustard, which may occur in flocks following rainfall events, Karoo Korhaan, Blue Korhaan, Blue Crane, Booted Eagle, Martial Eagle, Common Buzzard, Southern Pale Chanting Goshawk, Northern Black Korhaan, Grey-winged Francolin, Greater Kestrel, Lesser Kestrel, Amur Falcon, Spotted Eagle-Owl, Melodious Lark, Black Harrier, Black-shouldered Kite, White Stork and Lanner Falcon. Secretary Bird, Jackal Buzzard, Black Harrier and Verreaux's Eagle could occur irregularly in this habitat class.

The study area contains at least six large farm dams. These dams, when filled with water, serve as focal points or water birds and can act as roosting areas for Blue Cranes and possibly Greater Flamingo. Priority species that could potentially be attracted to slopes and cliffs habitat in the study area are Verreaux's Eagle, Booted Eagle, Jackal Buzzard, Cape Eagle-Owl, Lanner Falcon and African Rock-Pipit.

Isolated stands of alien trees at farmyards, along agricultural fields at some dams, consist mostly of Eucalyptus, Salix and Salicaceae species. Priority species that could potentially use the trees for nesting and/or roosting are Black Sparrowhawk, Rufous-chested Sparrowhawk, Lesser Kestrel (there is a confirmed roost in the town of Noupoort), Black-shouldered Kite, Jackal Buzzard, Common Buzzard, Martial Eagle, Verreaux's Eagle, Amur Falcon, Spotted Eagle-Owl and White Stork.

There are two high voltage lines running through the centre of the study area along the N9, namely the Noupoort-Middelburg 66 kV and the Newgate-Ludlow 132 kV. There is also a multitude of smaller reticulation lines and telephone lines which are used as perches by priority species such as Lesser Kestrel, Amur Falcon, Jackal Buzzard, Common Buzzard and Southern Pale Chanting Goshawks in the largely treeless environment.

There are few agricultural lands in the study area where Lucerne is cultivated as fodder for livestock. Priority Species which could be attracted to these fields are White Stork, Ludwig's Bustard, Blue Crane, Amur Falcon, Common Buzzard and Lesser Kestrel.

8.6 Heritage

The Karoo is a vast palaeontological landscape consisting of multiple layers of sediments that contain a vast array of fossils ranging from fish and early vertebrates to plant remains and trace fossils. Generally, the Karoo fossils predate the age of the life forms popularly known as dinosaurs by some scores of millions of years. Vertebrates of these times are known as early mammal-like reptiles which were ancestral to dinosaurs; hence, the Karoo palaeontological sequence has contributed on a world-scale to understanding the development of life forms on the planet.

Most of the study area is underlain by continental sediments of the Katberg Formation (Upper Beaufort Group/Tarkastad Subgroup, Karoo Supergroup) of earliest Triassic age. Latest Permian sediments of the underlying Balfour Formation crop out along the foot of the Katberg escarpment but are generally mantled by a thick apron of colluvium (sandy and gravelly scree, hillwash) and alluvium.

The latest, and possibly more intensive occupation of the Karoo started around 13 000 years ago with the onset of the current, Holocene climatic warm phase during the Later Stone Age. This important archaeological layer on the landscape represents the heritage of the San (popularly known as Bushman) hunter-gatherers and Khoekhoen (historically

known as "Hottentot" by early writers) herders, whose descendants make up a significant portion of South Africa's population today.

The proximity of the WEF infrastructure elements being considered in this report to the Zeekoei Valley suggests that the same pulses of human occupation, and thus types of archaeological sites and materials can be expected in the area they will occupy.

The spatial distribution of Late Stone archaeological sites in the Karoo reflects peoples' need to be close to water with rivers, pans, springs and other sources of water playing an important role in influencing where they lived. At the same time, the scarcity of natural caves and shelters in the Karoo landscape means that most archaeological sites are open occurrences of stone artefacts, ostrich eggshell fragments and, on more recent sites, pottery. Bone is rarely preserved in open contexts.

A number of Later Stone Age rock shelters have been excavated in the region including the Blydefontein Shelter located in the Kikvorsberge, approximately 14 km north of the 33/132kV substation. However, rock shelters in the area do not appear to contain archaeological deposits older than the start of the Holocene⁶.

The climate of the Karoo also played a key role in where people chose to live in the past. The winters are cold with temperatures dropping well below zero. The summers, by contrast, are hot and rainfall is often unreliable. Sampson (1985) observed that almost all Late Stone Age sites are situated at the bottom of the breaks of dolerite dykes, in sheltered areas on the crests of dolerite dykes, or in dolerite mazes and outcrops. So too, are the stone kraal circles by Khoekhoen groups after 1000 AD which are almost always built on the edges of low ridges and dykes. LSA sites tend to be rare on exposed hilltops and very high ridges, and according to Orton (2014), pre-colonial archaeological material, in general, is rare in the open grasslands that characterise the upland areas.

The results of this report suggest that the same may be true further back in time, as relatively little archaeology was recorded on the mountain top where the 33/132kV substation is proposed and which will be crossed by the grid connection route.

The most recent archaeological layer in the Karoo landscape relates to the historical occupation of the area by stock farmers of European descent from the late 18th century. Indications are that the formal granting of title deeds to land only started in the early 19th century but judging by the kinds of artefacts and structures found on the landscape, many of the farms are likely to have been used before land was formally granted or loaned (Sampson and Sampson, 1994).

8.7 Visual

Much of the study area is relatively hilly in character, with a mix of incised valleys and flatter, higher-lying plateaus. The central sector of the study area is characterised by relatively flat plains, typical of the Karoo.

The areas of the visual assessment zone which are characterised by flatter Karoo plains are largely covered by the Eastern Upper Karoo vegetation type, while the hillier areas in the east and west of the study area are largely characterised by Karoo Escarpment Grassland and Besemkaree Koppies Shrubland⁷. The aridity of the area has restricted the vegetation to low shrubs distributed uniformly across the landscape, except in areas of disturbance where patches of bare earth occur. Some tree species are present in the study area and in some areas, man has had an impact on the natural vegetation, especially

⁶ Sampson, 1985

⁷ Mucina, L. & Rutherford, M.C. (Eds) 2006. The vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute, Pretoria.

around some farmsteads, where tall exotic trees and other typical garden vegetation have been established over many years.

Much of the visual assessment area is characterised by natural unimproved vegetation which is dominated by low shrubland⁸. Agricultural activity in the area is severely restricted by the arid nature of the local climate, and livestock rearing (sheep) is the dominant activity. The nature of the climate and corresponding land use has also resulted in low stocking densities and relatively large farm properties across the area. Only very small areas along valley bottoms have been cultivated, and as such, the natural vegetation has been retained across much of the study area.

The area has a very low density of rural settlement, with relatively few scattered farmsteads occurring across the area. Built form across much of the study area is largely associated with pastoral elements and includes isolated farmsteads, ancillary farm buildings, livestock enclosures, windmills, fences, gravel access roads and telephone lines.

Railway lines, high voltage power lines and the N9 and N10 national routes form significant man-made features in an otherwise undeveloped landscape. It should also be noted that the recently constructed Noupoort Wind Farm is situated to the north of the proposed grid connection infrastructure, but only partially inside the visual assessment zone. Comprising some 35 wind turbines with associated infrastructure, this development has significantly transformed the natural environment in this area and is highly visible from the northern sector of the study area.

The closest built-up area is the town of Noupoort, which is situated approximately 8km north-west of the proposed grid connection infrastructure and well outside the visual assessment zone. Thus, the presence of the town is not expected to have an impact on the visual character of the study area.

8.8 Social

The majority of the study area is located within the Umsobomvu Local Municipality (ULM), which is located in the Northern Cape Province. A small section of the site is located in the Inxuba Yethemba Local Municipality (IYLM), which falls within the Eastern Cape Province. The IYLM falls within the Chris Hani District Municipality, and the ULM falls within the Pixley ka Seme District Municipality (PKSDM).

Social conditions in the study area are based on a review of available information as detailed in the original SIA. The main findings for baseline are listed below:

- Employment - Unemployment rate has decreased in both the ULM and IYLM between 2001 and 2011. However, while decreases are impressive, it should be noted that both the official unemployment and youthful unemployment rates are still very high.
- Household income - For both the ULM and IYLM, low-income levels reflect the reliance on an extensive agricultural sector and limited formal local employment opportunities. The low-income levels are a major concern given the link with dependency on social grants. Low-income levels also result in reduced local spending in the local economy and less tax and rates revenue for the district and local municipality.
- Education - Education levels have improved in both the ULM and the IYLM with 8 primary and 6 secondary school within the ULM and 52 educational facilities in IYLM. However, there is an acute shortage of schools in remote rural areas in ULM and unevenly spread in IYLM.
- Municipal services - Levels have all improved between 2001 and 2011, representing a socio-economic improvement.

⁸ Geoterrimage, 2014.

- Health: There are 7 healthcare facilities in the ULM, including a hospital and clinic in Noupoort, and 10 healthcare facilities in the IYLM. Key challenges identified in the IDP include:
 - Insufficient health facilities;
 - Lack of public transport services for patients;
 - Availability of medical staff;
 - Lack of aftercare facilities and support services to patients;
 - Lack of 24-hour health services and emergency services;
 - Lack of hospice for aged and terminal ill; and
 - Support of AIDs/HIV patients.
- Safety and security - IDP indicated there are 4 police stations in ULM, one of which is located in Noupoort. A magistrates Court is also located in Noupoort. Issues include the following:
 - Police need to be more visible;
 - Police stations are not accessible to the greater community - Lowryville, EurekaVille, Kwazamuxolo;
 - Shortage of police resources;
 - Not enough police stations;
 - Shortage of human resources;
 - High level of unemployment; and
 - Youth delinquency.

8.9 Traffic

In the safety assessment of the site access points, the site visibility line, traffic safety through access management requirements, speed limits and road surface conditions were evaluated in order to determine their suitability to provide access to the grid connection site. This study included a site visit conducted in January 2018, where the traffic characteristics of the surrounding road network were observed. Traffic counts up to two years old are considered acceptable, and no significant changes to the area were observed within this period. The site visit was undertaken as part of the traffic impact assessment of the authorised San Kraal and Phezukomoya TIA conducted in 2018 and is deemed as acceptable for use.

A capacity and safety assessment was undertaken to determine the anticipated operational performance of the surrounding road network and site access points to determine the extent of the traffic impact from which impact rating and possible mitigations were proposed. The capacity analysis evaluated the existing and expected future traffic volumes, grown to an acceptable horizon year, to ensure the future flows can be accommodated on the road network.

9 ASSESSMENT OF POTENTIAL IMPACTS

9.1 Soil

In most environmental investigations, the major impact on the natural resources of the study area would be the loss of potential agricultural land due to the construction of the transmission towers and any associated infrastructure. However, this impact would be of extremely limited significance and would be local in extent.

In this area, the steep topography in many parts, coupled with the shallow soils, relatively sandy topsoil and dry climate, means that a possible impact would be the increased danger of the erosion of topsoil when vegetation cover is removed. This would be especially relevant for the construction of access roads, especially since areas of already existing erosion can be identified using Google Earth.

Impact Phase: Construction and Operation							
Potential impact description: Loss of agricultural land							
	Intensity	Extent	Duration	Status	Significance	Probability	Confidence
Without Mitigation	L	L	L	Negative	M	H	H
With Mitigation	L	L	L	Neutral	M	H	H
Can the impact be reversed?			YES – very little land will be affected and soil can be replaced				
Will impact cause irreplaceable loss of resources?			NO – soil potential in vicinity is low, so no agricultural soils will be affected				
Can impact be avoided, managed or mitigated?			YES				
Mitigation measures to reduce residual risk or enhance opportunities: Avoid any areas under cultivation (if any)							

Impact Phase: Construction and Operation							
Potential impact description: Increased soil erosion hazard							
	Intensity	Extent	Duration	Status	Significance	Probability	Confidence
Without Mitigation	L	M	M	Negative	M	H	H
With Mitigation	L	L	L	Neutral	M	H	H
Can the impact be reversed?			YES – topsoil coverage can be replaced and affected site re-vegetated and stabilised				
Will impact cause irreplaceable loss of resources?			NO – soil potential in vicinity is low, so no agricultural soils will be affected				
Can impact be avoided, managed or mitigated?			YES – soil conservation measures should be implemented				
Mitigation measures to reduce residual risk or enhance opportunities: <ul style="list-style-type: none"> Minimise vegetation removal to the smallest possible footprint; Control possible runoff by using soil conservation and soil retention measures, especially on steep slopes; Store any removed topsoil for later use (contains indigenous seeds etc.) and re-vegetate as soon as possible; and Once specific infrastructure sites are known, site-specific measures can be devised for implementation, and any potentially high-risk sites can be identified. 							

The likelihood of cumulative impacts is small. Only if other developments (whether wind farms or not) were to occur, using the same access roads and thereby increasing potential soil erosion aspects, would cumulative impacts need to be considered.

9.2 Aquatic

The direct impacts with regard to the riparian areas and watercourses are:

- Loss of riparian systems and disturbance of the alluvial watercourses in the construction and decommissioning phases within any of the new watercourse crossings;
- Impact on riparian systems through the possible increase in surface water runoff on riparian form and function during the operational phase;

- Increase in sedimentation and erosion in the construction, operational and decommissioning phases;
- Potential impact on localised surface water quality during the construction and decommissioning phases;
- The No-go Alternative; and
- Cumulative impacts for the overall project due to the high number of projects surrounding this application.

Impact Phase: Construction and Decommissioning

Potential impact description: Loss of riparian systems and disturbance of the alluvial watercourses in the construction and decommissioning phases within any of the new watercourse crossings.

Should any of the proposed structures (laydown areas, access tracks along transmission lines) and the new roads not previously assessed be placed within the delineated watercourse, a physical loss of associated vegetation as well damage to the bed and banks of the observed systems could occur. Although limited aquatic obligate vegetation was seen, any disturbance of these areas could result in disturbance of the systems resulting in erosion / sedimentation, loss of habitat and corridor (Ecological Support Area) fragmentation.

These disturbances will be the greatest during the construction and again in the decommissioning phases as the related disturbances could result in loss and/or damage to vegetation, while to a lesser degree in the operation phase (i.e. as and when maintenance of roads occur).

	Intensity	Extent	Duration	Status	Significance	Probability	Confidence
Without Mitigation	M	M	M	Negative	M	M	H
With Mitigation	L	L	L	Negative	L	L	H

Can the impact be reversed?	YES – through removal of hard surfaces and careful reinstatement of natural ground levels coupled to revegetation
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Will impact cause irreplaceable loss of resources?	NO – significant watercourses remain within the greater catchment
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Can impact be avoided, managed or mitigated?	YES – mitigation measures below
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Mitigation measures to reduce residual risk or enhance opportunities:

- Where new watercourse crossings or impacts are required, the engineering team must provide an effective means to minimise the potential upstream and downstream effects of sedimentation and erosion (erosion protection) as well as minimise the loss of riparian vegetation (reduce footprint as much as possible).
- During the construction and operational/decommissioning phase, monitor culverts to see if erosion issues arise and if any erosion control is required.
- Where possible culvert bases must be placed as close as possible with natural levels in mind so that these do not form additional steps / barriers.
- Vegetation clearing should occur in a phased manner in accordance with the construction programme to minimise erosion and/or run-off. Large tracts of bare soil will either cause dust pollution or quickly erode and then cause sedimentation in the lower portions of the catchment.
- It is also advised that an Environmental Control Officer (ECO), with a good understanding of the local flora, be appointed during the construction phase. The ECO should be able to make clear recommendations with regards to the re-vegetation of the newly completed / disturbed areas within the aquatic environment, using selected species detailed in this report.
- All alien plant re-growth must be monitored, and should it occur these plants should be eradicated. The scale of the operation does, however, not warrant the use of a Landscape Architect and / or Landscape Contractor.

Impact Phase: Operation and Decommissioning

Potential impact description: Impact on riparian systems through the possible increase in surface water run-off on downstream riparian form and function, due to impacts to the hydrological regime such as alteration of surface run-off patterns

This could occur within the operational and decommissioning phases. When any of the hard or compacted surfaces (substations and or laydown areas) increase the volume and velocity of the surface runoff increases. This could impact the hydrological regime through the increase inflows that are concentrated in area, and as most plants are drought tolerant an increase in water will allow for other species to develop and outcompete typical plant species found within the region. This then affects the structure (i.e. larger taller grasses / shrubs / trees) and function (greater attenuation of flows, restricting any run-off from reaching downstream areas). The opposite can also happen. If flows are too concentrated with high velocities, scour and erosion results, with a complete reduction or disturbance of riparian habitat.

	Intensity	Extent	Duration	Status	Significance	Probability	Confidence
Without Mitigation	M	M	M	Negative	M	M	H
With Mitigation	L	L	L	Negative	L	L	H

Can the impact be reversed? YES – through removal of hard surfaces and careful reinstatement of natural ground levels coupled to revegetation

Will impact cause irreplaceable loss of resources? NO – significant watercourses remain within the greater catchment

Can impact be avoided, managed or mitigated? YES – mitigation measures below

Mitigation measures to reduce residual risk or enhance opportunities:

- Vegetation clearing should occur in a phased manner in accordance with the construction programme to minimise erosion and/or run-off. Large tracts of bare soil will either cause dust pollution or quickly erode and then cause sedimentation in the lower portions of the catchment.
- Any storm-water within the site must be handled in a suitable manner, i.e. trap sediments, and reduce flow velocities.
- No stormwater run-off must be allowed to discharge directly into any watercourse along roads, and flows should thus be allowed to dissipate over a broad area covered by natural vegetation.
- Stormwater from hardstand areas, buildings and substation must be managed using appropriate channels and swales when located within steep areas or have steep embankments.

Impact Phase: Construction/ Operation/ Decommissioning

Potential impact description: Increase in sedimentation and erosion within the development footprint

Impacts include changes to the hydrological regime such as alteration of surface run-off patterns, run-off velocities and or volumes which could occur during the construction, operational and decommissioning phases

	Intensity	Extent	Duration	Status	Significance	Probability	Confidence
Without Mitigation	M	M	M	Negative	M	M	H
With Mitigation	L	L	L	Negative	L	L	H

Can the impact be reversed? YES – through removal of hard surfaces and careful reinstatement of natural ground levels coupled to revegetation

Will impact cause irreplaceable loss of resources? NO – significant watercourses remain within the greater catchment

Can impact be avoided, managed or mitigated? YES – mitigation measures below

Mitigation measures to reduce residual risk or enhance opportunities:

- Any storm-water within the site must be handled in a suitable manner, i.e. trap sediments, and reduce flow velocities. Any management actions must be dealt with in the Stormwater Management Plan (SWMP) typically submitted post-EA, forming part of any WULA.

Impact Phase: Construction/ Operation/ Decommissioning

Potential impact description: Impact on localised surface water quality

During construction / decommissioning and to a limited degree the operational activities, chemical pollutants (hydrocarbons from equipment and vehicles, cleaning fluids, cement powder, wet cement, shutter-oil, etc.) associated with site-clearing machinery and construction activities could be washed downslope via the ephemeral systems

	Intensity	Extent	Duration	Status	Significance	Probability	Confidence
Without Mitigation	M	M	M	Negative	M	L	H
With Mitigation	L	L	L	Negative	L	L	H
Can the impact be reversed?	YES – through typical measures associated with the clean-up of spills						
Will impact cause irreplaceable loss of resources?	NO – due to limited flows within these systems						
Can impact be avoided, managed or mitigated?	YES – mitigation measures below						

Mitigation measures to reduce residual risk or enhance opportunities:

- Strict use and management of all hazardous materials used on-site in line with the specific material safety data sheets, e.g. fuels must be stored within a contained / bunded site with the necessary and spill kits available.
- Strict management of potential sources of pollution (e.g. litter, hydrocarbons from vehicles & machinery, cement during construction, etc.).
- Containment of all contaminated water by means of careful run-off management on the development site.
- Appropriate ablution facilities should be provided for construction workers during construction and on-site staff during the operation of the facility.
- Strict control over the behaviour of construction workers, with regard to littering, use and storage of chemicals.
- Working protocols incorporating pollution control measures (including approved method statements by the contractor) should be clearly set out in the Environmental Management Plan (EMP) for the project and strictly enforced.

Impact Phase: Construction/ Operation/ Decommissioning

Potential impact description: Overall cumulative impact

In the assessment of this project, a number of projects have been assessed by the specialist within a 35km radius have been reviewed and or sites accessed during the course of travelling between the various projects. Of these potential projects, the specialist has been involved in the initial EIA aquatic assessments or has managed / assisted with the WUL process for several of the projects.

All of the projects have indicated that this is also their intention with regard mitigation, i.e. selecting the best possible routes to minimise the local and regional impacts and improving the drainage or hydrological conditions with these rivers the cumulative impact could be seen as a net benefit. However, the worse-case scenario has been assessed below, i.e. only the minimum of mitigation be implemented by the other projects, and that flows within these systems are sporadic.

	Intensity	Extent	Duration	Status	Significance	Probability	Confidence
Without Mitigation	M	M	M	Negative	M	M	H

With Mitigation	L	L	L	Negative	L	L	L
Can the impact be reversed?			YES – due to the nature of the projects and surrounding aquatic ecosystems				
Will impact cause irreplaceable loss of resources?			NO				
Can impact be avoided, managed or mitigated?			YES – mitigation measures below				
Mitigation measures to reduce residual risk or enhance opportunities:							
<ul style="list-style-type: none"> Improve the current stormwater and energy dissipation features not currently found along the tracks and roads within the region. Install properly sized culverts with erosion protection measures at the present road / track crossings. 							

9.3 Ecology

Impact Phase: Construction							
Potential impact description: Impact on vegetation and listed plant species due to transformation within the development footprint.							
	Intensity	Extent	Duration	Status	Probability	Confidence	Significance
Without Mitigation	M	L	H	Negative	H	H	M
With Mitigation	L	L	M	Negative	L	H	L
Can the impact be reversed?			No - transformation is a necessary outcome of the development and while some areas will become revegetated, some long-term habitat loss is likely.				
Will impact cause irreplaceable loss of resources?			No, no critical or rare habitats are within the development footprint.				
Can impact be avoided, managed or mitigated?			Possibly, through avoidance, but some residual impact is likely				
Mitigation measures to reduce residual risk or enhance opportunities:							
<ul style="list-style-type: none"> Preconstruction walk-through of the approved substation and power line development footprints to ensure that sensitive habitats and species are avoided where possible. Ensure that lay-down and other temporary infrastructure is within medium- or low- sensitivity areas, preferably previously transformed areas if possible. Minimise the development footprint as far as possible and rehabilitate disturbed areas that are no longer required by the operational phase of the development. A large proportion of the impact of the power line would stem from access roads and these should be minimised as far as possible and not be larger than required. Preconstruction environmental induction for all construction staff on-site to ensure that basic environmental principles are adhered to. This includes topics such as no littering, appropriate handling of pollution and chemical spills, avoiding fire hazards, minimising wildlife interactions, remaining within demarcated construction areas etc. Demarcate sensitive areas in close proximity to the development footprint as no-go areas with construction tape or similar and clearly mark as no-go area. 							

Impact Phase: Construction							
Potential impact description: Faunal impacts due to construction-phase noise and physical disturbance.							
	Intensity	Extent	Duration	Status	Probability	Confidence	Significance

Without Mitigation	H	L	M	Negative	H	H	M
With Mitigation	L	L	L	Negative	L	M	L
Can the impact be reversed?	Construction-phase disturbance will be transient, but some habitat loss would be long term.						
Will impact cause irreplaceable loss of resources?	Not likely as there do not appear to be any significant populations of species of high conservation concern within the affected area.						
Can impact be avoided, managed or mitigated?	Only partly as noise and construction phase disturbance and habitat loss cannot be entirely avoided or mitigated.						
Mitigation measures to reduce residual risk or enhance opportunities:							
<ul style="list-style-type: none"> • Preconstruction walk-through of the facility to identify areas of faunal sensitivity. • During construction, any fauna directly threatened by the construction activities should be removed to a safe location by the ECO or other suitably qualified person. • The illegal collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. Personnel should not be allowed to wander off the construction site. • Fires within suitable dedicated containers (i.e. braai drums etc.) should only be allowed within the construction camp and similar demarcated and cleared areas, and no fires should be allowed in the open veld as there is a risk of runaway veld fires. • If any parts of site such as construction camps must be lit at night, this should be done with low-UV type lights (such as most LEDs) as far as practically possible, which do not attract insects, and which should be directed downwards. • All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill. • No unauthorised persons should be allowed onto the site, and site access should be strictly controlled • All construction vehicles should adhere to a low speed limit (40km/h for cars and 30km/h for trucks) to avoid collisions with susceptible species such as snakes and tortoises and rabbits and hares. Speed limits should apply within the facility as well as on the public gravel access roads to the site. • All personnel should undergo environmental induction with regards to fauna and in particular awareness about not harming or collecting species such as snakes, tortoises and owls which are often needlessly persecuted. 							

Impact Phase: Operation							
Potential impact description: Following construction, the site will be highly vulnerable to soil erosion.							
	Intensity	Extent	Duration	Status	Probability	Confidence	Significance
Without Mitigation	M	L	H	Negative	H	H	M
With Mitigation	L	L	L	Negative	L	H	L
Can the impact be reversed?	With appropriate mitigation, the impact can be ameliorated						
Will impact cause irreplaceable loss of resources?	The loss of large amounts to topsoil would potentially be an irreplaceable loss of resources, but with mitigation, this can be avoided.						
Can impact be avoided, managed or mitigated?	With appropriate control measures, erosion risk can be well mitigated						
Mitigation measures to reduce residual risk or enhance opportunities:							
<ul style="list-style-type: none"> • Erosion management at the site should take place according to the Erosion Management Plan and Rehabilitation Plan. 							

- All roads and other hardened surfaces should have runoff control features which redirect water flow and dissipate any energy in the water, which may pose an erosion risk.
- Regular monitoring for erosion after construction to ensure that no erosion problems have developed as result of the disturbance, as per the Erosion Management and Rehabilitation Plans for the project.
- All erosion problems observed should be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques.
- All cleared areas should be revegetated with indigenous perennial shrubs and grasses from the local area. These can be cut when dry and placed on the cleared areas if natural recovery is slow.

Impact Phase: Operation

Potential impact description: Following construction, the site will be vulnerable to alien plant invasion.

	Intensity	Extent	Duration	Status	Probability	Confidence	Significance
Without Mitigation	M	L	H	Negative	H	H	M
With Mitigation	L	L	L	Negative	L	H	L
Can the impact be reversed?	With appropriate mitigation, the impact can be ameliorated						
Will impact cause irreplaceable loss of resources?	With mitigation, there would no loss of resources						
Can impact be avoided, managed or mitigated?	With appropriate control measures, alien plants can be controlled and reduced to very low impact						

Mitigation measures to reduce residual risk or enhance opportunities:

- Wherever excavation is necessary, topsoil should be set aside and replaced after construction to encourage natural regeneration of the local indigenous species.
- Due to the disturbance at the site as well as the increased runoff generated by the hard infrastructure, alien plant species are likely to be a long-term problem at the site, and a long-term control plan will need to be implemented. Problem woody species such as *Prosopis* are already present in the area and are likely to increase rapidly if not controlled.
- Regular monitoring for alien plants within the development footprint as well as adjacent areas which receive runoff from the facility as there are also likely to be prone to invasion problems.
- Regular alien clearing should be conducted, as needed, using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible.

Impact Phase: Operation

Potential impact description: Cumulative impact on CBAs and broad scale ecological processes

	Intensity	Extent	Duration	Status	Probability	Confidence	Significance
Without Mitigation	M	L	H	Negative	H	H	M
With Mitigation	L	L	M	Negative	L	H	L
Can the impact be reversed?	With appropriate mitigation, the impact can be ameliorated						
Will impact cause irreplaceable loss of resources?	With mitigation, there would no loss of resources						
Can impact be avoided, managed or mitigated?	With appropriate control measures, alien plants can be controlled and reduced to very low impact						

Mitigation measures to reduce residual risk or enhance opportunities:

- Wherever excavation is necessary, topsoil should be set aside and replaced after construction to encourage natural regeneration of the local indigenous species.
- Due to the disturbance at the site as well as the increased runoff generated by the hard infrastructure, alien plant species are likely to be a long-term problem at the site, and a long-term control plan will need

<p>to be implemented. Problem woody species such as <i>Prosopis</i> are already present in the area and are likely to increase rapidly if not controlled.</p> <ul style="list-style-type: none"> Regular monitoring for alien plants within the development footprint as well as adjacent areas which receive runoff from the facility as there are also likely to be prone to invasion problems. Regular alien clearing should be conducted, as needed, using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible.

Impact Phase: Decommissioning							
Potential impact description: Faunal impacts due to decommissioning phase activities.							
	Intensity	Extent	Duration	Status	Probability	Confidence	Significance
Without Mitigation	M	L	L	Negative	M	H	L
With Mitigation	L	L	L	Negative	L	H	L
Can the impact be reversed?			The impact would be transient and persist for the decommissioning period only.				
Will impact cause irreplaceable loss of resources?			No.				
Can impact be avoided, managed or mitigated?			Most the impacts can be mitigated, and those that cannot would be transient.				
Mitigation measures to reduce residual risk or enhance opportunities:							
<ul style="list-style-type: none"> Any potentially dangerous fauna such as snakes or fauna threatened by the decommissioning activities should be removed to a safe location prior to the commencement of decommissioning activities. All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill. All vehicles accessing the site should adhere to a low speed limit (40km/h max) to avoid collisions with susceptible species such as snakes and tortoises. No excavated holes or trenches should be left open for extended periods as fauna may fall in and become trapped. All above-ground infrastructure should be removed from the site. 							

Impact Phase: Decommissioning							
Potential impact description: Following decommissioning, the site will be highly vulnerable to soil erosion.							
	Intensity	Extent	Duration	Status	Probability	Confidence	Significance
Without Mitigation	M	L	M	Negative	M	H	M
With Mitigation	L	L	L	Negative	L	H	L
Can the impact be reversed?			With appropriate mitigation, the impact can be ameliorated				
Will impact cause irreplaceable loss of resources?			The loss of large amounts to topsoil would potentially be an irreplaceable loss of resources, but with mitigation, this can be avoided.				
Can impact be avoided, managed or mitigated?			With appropriate control measures, erosion risk can be well mitigated				
Mitigation measures to reduce residual risk or enhance opportunities:							
<ul style="list-style-type: none"> Any roads that will not be rehabilitated should have runoff control features which redirect water flow and dissipate any energy in the water, which may pose an erosion risk. There should be regular monitoring for erosion for at least 2 years after decommissioning by the applicant to ensure that no erosion problems develop as result of the disturbance, and if they do, to immediately implement erosion control measures. 							

- All erosion problems observed should be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques.
- All disturbed and cleared areas should be revegetated with indigenous perennial shrubs and grasses from the local area.

Impact Phase: Decommissioning

Potential impact description: Following decommissioning, the site will be vulnerable to alien plant invasion.

	Intensity	Extent	Duration	Status	Probability	Confidence	Significance
Without Mitigation	M	L	H	Negative	H	H	M
With Mitigation	L	L	L	Negative	L	H	L
Can the impact be reversed?	With appropriate mitigation, the impact can be ameliorated						
Will impact cause irreplaceable loss of resources?	With mitigation, there would no loss of resources						
Can impact be avoided, managed or mitigated?	With appropriate control measures, alien plants can be controlled and reduced to very low impact						
Mitigation measures to reduce residual risk or enhance opportunities:							
<ul style="list-style-type: none"> • Wherever excavation is necessary for decommissioning, topsoil should be set aside and replaced after decommissioning activities are complete to encourage natural regeneration of the local indigenous species. • Due to the disturbance at the site alien plant species are likely to be a long-term problem at the site following decommissioning, and regular control will need to be implemented until a cover of indigenous species has returned. • Regular monitoring for alien plants within the disturbed areas for at least two years after decommissioning or until alien invasives are no longer a problem at the site. • Regular alien clearing should be conducted using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible. 							

Impact Phase: Cumulative Impact

Potential impact description: Contribution of the current development to cumulative impacts on habitat loss and future ability to meet conservation targets.

	Intensity	Extent	Duration	Status	Probability	Confidence	Significance
Without Mitigation	M	L	M	Negative	H	H	M
With Mitigation	M	L	M	Negative	M	M	M
Can the impact be reversed?	The impact would persist for as long the various developments were present						
Will impact cause irreplaceable loss of resources?	Potentially if projects do not implement appropriate mitigation and avoidance.						
Can impact be avoided, managed or mitigated?	To some extent, but some of the impact would result from the presence of the facilities themselves, which cannot be avoided.						
Mitigation measures to reduce residual risk or enhance opportunities:							
<ul style="list-style-type: none"> • The final position of the substations and pylons should be identified in the field through a preconstruction walk-through to microsite these features and avoid impact on sensitive species and habitats. • The various mitigation and management plans associated with the development should be followed and implemented effectively to reduce the cumulative contribution of the current development. 							

9.4 Birds

The key potential impact types on avifauna associated with grid connection infrastructure are:

- Displacement of priority species due to habitat transformation;
- Displacement due to disturbance;
- Electrocutation of priority avifauna in the substations; and
- Mortality of priority avifauna due to collisions.

Impact Phase: Construction							
Potential impact description: Displacement of priority species due to permanent habitat transformation in the substations and batching plant							
	Intensity	Extent	Duration	Status	Probability	Confidence	Significance
Without Mitigation	L	L	H	Negative	L	H	L
With Mitigation	L	L	H	Negative	L	H	L
Can the impact be reversed?			NO – The habitat transformation is long-term, possibly permanent				
Will impact cause irreplaceable loss of resources?			NO – The species most likely to be directly affected by this impact would be small, non-Red Data species.				
Can impact be avoided, managed or mitigated?			YES – To some extent, but very limited mitigation can be applied to reduce the significance of this impact as the total permanent transformation of the natural habitat within the construction footprint of the substation yard is unavoidable				
Mitigation measures to reduce residual risk or enhance opportunities: A site-specific Environmental Management Programme (EMPr) must be implemented, which gives an appropriate and detailed description of how construction activities must be conducted to reduce unnecessary destruction and degradation of habitat. All contractors are to adhere to the EMPr and should apply good environmental practice during construction. The EMPr should specifically include the following:							
<ul style="list-style-type: none"> • The minimum footprint areas for infrastructure should be used wherever possible, including road widths and lengths; • No off-road driving; • Maximum use of existing roads; • Measures to control dust; • Restricted access to the rest of the property; and • Following construction, rehabilitation of all areas disturbed (e.g. temporary access tracks) must be undertaken, and to this end, a habitat restoration plan is to be developed by a rehabilitation specialist and implemented accordingly. 							

Impact Phase: Construction							
Potential impact description: Displacement of priority species, particularly Red Data species, due to disturbance associated with the construction of the powerlines and substations.							
	Intensity	Extent	Duration	Status	Probability	Confidence	Significance
Without Mitigation	M	L	L	Negative	H	M	M
With Mitigation	L	L	H	Negative	L	M	L

Can the impact be reversed?	YES - The impact is likely to be mitigated through the passage of time once the construction activities are completed.
Will impact cause irreplaceable loss of resources?	NO – Priority species should recolonise the area again after the construction activities have ceased.
Can impact be avoided, managed or mitigated?	YES – To some extent.
<p>Mitigation measures to reduce residual risk or enhance opportunities:</p> <p>A site-specific EMPr must be implemented, which gives an appropriate and detailed description of how construction activities must be conducted. All contractors are to adhere to the EMPr and should apply good environmental practice during construction. The EMPr must specifically include the following:</p> <ul style="list-style-type: none"> • No off-road driving; • Maximum use of existing roads; • Measures to control noise; • Restricted access to the rest of the property; • The appointed Environmental Control Officer (ECO) must be trained by an avifaunal specialist to identify the potential priority species as well as the signs that indicate possible breeding by these species. The ECO must then, during audits/site visits, make a concerted effort to look out for such breeding activities of especially Red Data species, and such efforts may include the training of construction staff to identify Red Data species, followed by regular questioning of staff as to the regular whereabouts on site of these species. If any of the Red Data species are confirmed to be breeding (e.g. if a nest site is found), construction activities within 500m of the breeding site must cease, and an avifaunal specialist is to be contacted immediately for further assessment of the situation and instruction on how to proceed; and • Prior to construction, an avifaunal specialist should conduct a site walkthrough, covering the final power line route, to identify any nests/breeding/roosting activity of priority species, the results of which may inform the final construction schedule in close proximity to that specific area, including abbreviating construction time, scheduling activities around avian breeding and/or movement schedules, and lowering levels of associated noise. 	

Impact Phase: Operational							
Potential impact description: Electrocution of priority species in substations							
	Intensity	Extent	Duration	Status	Probability	Confidence	Significance
Without Mitigation	H	M	H	Negative	L	H	M
With Mitigation	L	M	H	Negative	L	H	L
Can the impact be reversed?	YES – Partly reversible. Mitigation measures could reduce the risk of electrocutions						
Will impact cause irreplaceable loss of resources?	NO – It is not expected that the mortality will lead to the complete eradication of a priority species from the study area						
Can impact be avoided, managed or mitigated?	YES – Future electrocutions can be avoided through the application of suitable mitigation measures.						
<p>Mitigation measures to reduce residual risk or enhance opportunities:</p> <p>The hardware within the proposed transmission substation yard is too complex to warrant any pro-active mitigation for electrocution at this stage. It is recommended that if on-going impacts are recorded once operational, site-specific mitigation be applied reactively. This is an acceptable approach because priority avifauna, especially Red Data species, is unlikely to frequent the substation and be electrocuted.</p>							

Impact Phase: Operational
Potential impact description: Mortality of priority avifauna due to collisions with the earth wire of the proposed powerlines.

	Intensity	Extent	Duration	Status	Probability	Confidence	Significance
Without Mitigation	H	M	H	negative	H	H	H
With Mitigation	H	M	H	Negative	L	M	M
Can the impact be reversed?			YES – Partly reversible. Mitigation measures could reduce the risk of collisions				
Will impact cause irreplaceable loss of resources?			NO – It is not expected that the mortality will lead to the complete eradication of a priority species from the study area				
Can impact be avoided, managed or mitigated?			YES – Partially through the application of anti-collision devices				
<p>Mitigation measures to reduce residual risk or enhance opportunities:</p> <ul style="list-style-type: none"> An avifaunal specialist must conduct a site walkthrough of final pylon positions prior to construction to determine if, and where, BFDs are required. Install BFDs as per the instructions of the specialist following the site walkthrough, which may include the need for modified BFDs fitted with solar-powered LED lights on certain spans. The operational monitoring programme must include regular monitoring (i.e. quarterly) of the powerlines for collision mortalities. 							

Impact Phase: Decommissioning							
Potential impact description: Displacement of priority species, particularly Red Data species, due to the disturbance associated with the decommissioning of the powerline, substations and batching plant							
	Intensity	Extent	Duration	Status	Probability	Confidence	Significance
Without Mitigation	M	L	L	Negative	H	M	M
With Mitigation	M	L	L	Negative	M	M	M
Can the impact be reversed?			YES – The impact is likely to be mitigated through the passage of time once the construction activities are completed.				
Will impact cause irreplaceable loss of resources?			NO – Priority species should recolonise the area again after construction activities have ceased.				
Can impact be avoided, managed or mitigated?			YES – To some extent.				
<p>Mitigation measures to reduce residual risk or enhance opportunities:</p> <p>A site-specific Environmental Management Programme (EMPr) must be implemented, which gives an appropriate and detailed description of how de-commission activities must be conducted. All contractors are to adhere to the EMPr and should apply good environmental practice. The EMPr must specifically include the following:</p> <ul style="list-style-type: none"> No off-road driving; Maximum use of existing roads; Measures to control noise; Restricted access to the rest of the property; The appointed Environmental Control Officer (ECO) must be trained by an avifaunal specialist to identify the potential priority species as well as the signs that indicate possible breeding by these species. The ECO must then, during audits/site visits, make a concerted effort to look out for such breeding activities of especially Red Data species, and such efforts may include the training of construction staff to identify Red Data species, followed by regular questioning of staff as to the regular whereabouts on site of these species. If any of the Red Data species are confirmed to be breeding (e.g. if a nest site is found), activities within 500m of the breeding site must cease, and an avifaunal specialist is to be contacted immediately for further assessment of the situation and instruction on how to proceed; and 							

- Prior to de-commissioning, an avifaunal specialist should conduct a site walkthrough, to identify any nests/breeding/roosting activity of priority species, the results of which may inform the final schedule in close proximity to that specific area, including abbreviating construction time, scheduling activities around avian breeding and/or movement schedules, and lowering levels of associated noise.

Impact Phase: Cumulative							
Potential impact description: Cumulative impact of electrocution, collision and displacement							
	Intensity	Extent	Duration	Status	Probability	Confidence	Significance
Without Mitigation	M	M	H	Negative	M	M	H
With Mitigation	M	M	H	Negative	L	M	M
Can the impact be reversed?			YES – With the application of mitigation measures.				
Will impact cause irreplaceable loss of resources?			NO – Not with the application of mitigation measures.				
Can impact be avoided, managed or mitigated?			YES – With the application of mitigation measures.				
Mitigation measures to reduce residual risk or enhance opportunities: A site-specific Environmental Management Programme (EMPr) must be implemented, which gives an appropriate and detailed description of how activities must be conducted. All contractors are to adhere to the EMPr and should apply good environmental practice. The EMPr must specifically include the following:							
<ul style="list-style-type: none"> • No off-road driving; • Maximum use of existing roads; • Measures to control noise; • Restricted access to the rest of the property; • The appointed Environmental Control Officer (ECO) must be trained by an avifaunal specialist to identify the potential priority species as well as the signs that indicate possible breeding by these species. The ECO must then, during audits/site visits, make a concerted effort to look out for such breeding activities of especially Red Data species, and such efforts may include the training of construction staff to identify Red Data species, followed by regular questioning of staff as to the regular whereabouts on site of these species. If any of the Red Data species are confirmed to be breeding (e.g. if a nest site is found), activities within 500m of the breeding site must cease, and an avifaunal specialist is to be contacted immediately for further assessment of the situation and instruction on how to proceed; and • Prior to construction and decommissioning, an avifaunal specialist should conduct a site walkthrough, to identify any nests/breeding/roosting activity of priority species, the results of which may inform the final schedule in close proximity to that specific area, including abbreviating construction or decommissioning time, scheduling activities around avian breeding and/or movement schedules, and lowering levels of associated noise. 							

9.5 Heritage

The following principal activities associated with the construction and installation of the proposed infrastructure have been identified as having the potential for significant impacts on heritage resources:

- Site preparation and levelling (substations); and
- Excavation of foundations (substations and grid connection OHLs).

Impact Phase: Construction/Operation/Decommissioning							
Potential impact description: Displacement or destruction of palaeontological heritage resources by earthmoving or excavation activities							
	Intensity	Extent	Duration	Status	Probability	Significance	Confidence

Without Mitigation	M	L	H	Negative	M	M	M
With Mitigation	L	L	H	Neutral	L	L	M
Can the impact be reversed?	NO – The finite and non-renewable nature of palaeontological resources means impacts cannot be fully rectified or reversed.						
Will impact cause irreplaceable loss of resources?	YES – The finite nature of palaeontological resources means that any material lost cannot be replaced.						
Can impact be avoided, managed or mitigated?	YES – The impact can be avoided if the bedrock is not disturbed by project activities. If disturbance is unavoidable, impacts can be mitigated by implementing the measures set out below.						
Mitigation measures to reduce residual risk or enhance opportunities:							
<ul style="list-style-type: none"> A fossil chance finds procedure must be implemented and applied during earthworks to ensure that any substantial fossil remains (such as vertebrate bones, teeth or trackways, plant-rich fossil lenses or dense fossil burrow assemblages) are reported. Any fossil finds must be safeguarded by the responsible Environmental Control Officer, preferably in situ, and the responsible heritage management authority (SAHRA for the Northern Cape or ECPRHA for the Eastern Cape) notified of the find immediately so that appropriate mitigation action can be taken by a professional palaeontologist. These mitigation recommendations must be incorporated into the Environmental Management Plan (EMP). 							
Residual Impact	Yes – but acceptable as of low negative significance provided mitigation measures proposed have been properly and fully implemented.						

Impact Phase: Construction/Operation/Decommissioning

Potential impact description: Displacement or destruction of archaeological and colonial period heritage resources by earthmoving or excavation activities

	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	M	L	H	Negative	M	M	M
With Mitigation	L	L	H	Neutral	L	L	M
Can the impact be reversed?	NO – Archaeological and colonial period heritage resources are finite and non-renewable, which means that impacts cannot be fully rectified or reversed.						
Will impact cause irreplaceable loss of resources?	YES – The finite nature of palaeontological resources means that heritage resources destroyed or damaged cannot be replaced.						
Can impact be avoided, managed or mitigated?	YES – It is unlikely that impacts can be totally avoided, given the nature of the archaeological sites recorded in the area, but they can be mitigated by implementing the measures set out below.						
Mitigation measures to reduce residual risk or enhance opportunities:							
<ul style="list-style-type: none"> Any substantial archaeological sites (i.e. dense artefact clusters or stratified deposits) encountered must be reported to the responsible Environmental Control Officer, who must ensure that finds are safeguarded in situ. The responsible heritage management authority (SAHRA for the Northern Cape or ECPRHA for the Eastern Cape) must be notified of any finds immediately so that appropriate mitigation action can be taken by a professional archaeologist. Historical farmyards and buildings, particularly the cluster of buildings represented by JR003-004 and JR006-007, must be avoided and any old stone kraals or ruins must not be disturbed. This includes not removing stone from walls, or artefacts from the earth or earth surface. 							

<ul style="list-style-type: none"> Any chance discoveries of human remains must be reported to the appropriate heritage authority and project archaeologist. These mitigation recommendations must be incorporated into the Environmental Management Plan (EMP). 	
Residual Impact	Yes – but acceptable as of low negative significance provided mitigation measures proposed have been properly and fully implemented.

In respect of cumulative impacts, the comparative assessment of several wind and solar energy projects in the area indicates that the cumulative impacts on archaeological resources will be of low consequence for WEFs and tolerable for solar energy facilities with their more intensive impacts on the land within their footprints. The significance of cumulative impacts on palaeontological resources, given the comparatively small combined footprint of the alternative energy projects considered and the very extensive outcrop areas of the Balfour and Katberg Formations, is assessed to be low.

9.6 Visual

It should be noted that the additional grid infrastructure to serve the proposed split WEFs is located within either the approved San Kraal WEF site or the approved Phezukomoya WEF site. As such, this infrastructure forms an integral part of the overall WEF project, and this factor would reduce the visual impacts of the proposed power lines and substations. Elements of the proposed grid infrastructure which are located outside the approved WEF sites, however, specifically the proposed 400 kV turn-in options and a significant portion of the southerly 132 kV OHL (HBH Corridor), could potentially be associated with increased visual impacts. Accordingly, impacts in respect of this infrastructure have been assessed separately, as reflected in the rating tables below.

Visual impacts during the decommissioning phase are potentially similar to those associated with the construction phase.

Impact Phase: Construction							
Potential impact description:							
Rating of visual impacts of the proposed 132 kV power lines and substations to serve the proposed split WEFs during construction.							
<ul style="list-style-type: none"> Large construction vehicles and equipment will alter the natural character of the study area and expose visual receptors to impacts associated with construction. Construction activities may be perceived as an unwelcome visual intrusion, particularly in more natural undisturbed settings. Dust emissions and dust plumes from increased traffic on gravel roads serving the construction site may evoke negative sentiments from surrounding viewers. Surface disturbance during construction would expose bare soil, which could visually contrast with the surrounding environment. Vegetation clearance required for the construction of the proposed substation is expected to increase dust emissions and alter the natural character of the surrounding area, thus creating a visual impact. Temporary stockpiling of soil during construction may alter the flat landscape. Wind blowing over these disturbed areas could result in dust which would have a visual impact. 							
	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	L	L	L	Negative	L	M	M
With Mitigation	L	L	L	Negative	L	M	M
Can the impact be reversed?			YES – negative effects of construction will cease once construction is complete				

Will impact cause irreplaceable loss of resources?	YES – there will be marginal loss of resources
Can impact be avoided, managed or mitigated?	YES – mitigation measures can reduce impacts
<p>Mitigation measures to reduce residual risk or enhance opportunities:</p> <ul style="list-style-type: none"> • Carefully plan to minimise the construction period and avoid construction delays. • Inform receptors of the construction programme and schedules. • Minimise vegetation clearing and rehabilitate cleared areas as soon as possible. • Vegetation clearing should take place in a phased manner. • Maintain a neat construction site by removing rubble and waste materials regularly. • Make use of existing gravel access roads where possible. • Limit the number of vehicles and trucks travelling to and from the construction site, where possible. • Unless there are water shortages, ensure that dust suppression techniques are implemented: <ul style="list-style-type: none"> ▪ on all access roads; ▪ in all areas where vegetation clearing has taken place; and ▪ on all soil stockpiles. 	
Residual Impact	Yes – mitigation measures can reduce impacts

Impact Phase: Construction

Potential impact description:

Rating of visual impacts of the proposed electrical infrastructure during construction.

- Large construction vehicles and equipment will alter the natural character of the study area and expose visual receptors to impacts associated with construction.
- Construction activities may be perceived as an unwelcome visual intrusion, particularly in more natural undisturbed settings.
- Dust emissions and dust plumes from increased traffic on gravel roads serving the construction site may evoke negative sentiments from surrounding viewers.
- Surface disturbance during construction would expose bare soil, which could visually contrast with the surrounding environment.
- Vegetation clearance required for the construction of the proposed substation is expected to increase dust emissions and alter the natural character of the surrounding area, thus creating a visual impact.
- Temporary stockpiling of soil during construction may alter the flat landscape. Wind blowing over these disturbed areas could result in dust which would have a visual impact.

	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	L	L	L	Negative	L	M	M
With Mitigation	L	L	L	Negative	L	M	M
Can the impact be reversed?	YES – negative effects of construction will cease once construction is complete						
Will impact cause irreplaceable loss of resources?	YES – there will be marginal loss of resources						
Can impact be avoided, managed or mitigated?	YES – mitigation measures can reduce impacts						
<p>Mitigation measures to reduce residual risk or enhance opportunities:</p> <ul style="list-style-type: none"> • Carefully plan to minimise the construction period and avoid construction delays. • Inform receptors of the construction programme and schedules. • Minimise vegetation clearing and rehabilitate cleared areas as soon as possible. • Vegetation clearing should take place in a phased manner. 							

- Maintain a neat construction site by removing rubble and waste materials regularly.
- Make use of existing gravel access roads where possible.
- Limit the number of vehicles and trucks travelling to and from the construction site, where possible.
- Unless there are water shortages, ensure that dust suppression techniques are implemented:
 - on all access roads;
 - in all areas where vegetation clearing has taken place; and
 - on all soil stockpiles.

Residual Impact	Yes – mitigation measures can reduce impacts
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Impact Phase: Operation

Potential impact description:

Rating of visual impacts of the proposed 132kV power line and substations to serve the proposed split WEFs during operation

- The proposed power line and substations could alter the visual character of the surrounding area and expose sensitive visual receptor locations to visual impacts.
- The development may be perceived as an unwelcome visual intrusion, particularly in more natural undisturbed settings.
- Dust emissions and dust plumes from maintenance vehicles accessing the site via gravel roads may evoke negative sentiments from surrounding viewers.
- The night time visual environment could be altered as a result of operational and security lighting at the proposed substations.

	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	L	M	L	Negative	L	M	M
With Mitigation	L	M	L	Negative	L	M	M

Can the impact be reversed?	YES – If the WEF is decommissioned
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Will impact cause irreplaceable loss of resources?	YES – there will be marginal loss of resources
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Can impact be avoided, managed or mitigated?	YES – mitigation measures can reduce impacts
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Mitigation measures to reduce residual risk or enhance opportunities:

- Where possible, limit the amount of security and operational lighting present at the on-site substation.
- Light fittings for security at night should reflect the light toward the ground and prevent light spill.
- Where possible, limit the number of maintenance vehicles using access roads.
- Non-reflective surfaces should be utilised where possible.

Residual Impact	Yes – mitigation measures can reduce impacts
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Impact Phase: Operation

Potential impact description:

Rating of visual impacts of the proposed electrical infrastructure during operation.

- The proposed power line and substations could alter the visual character of the surrounding area and expose sensitive visual receptor locations to visual impacts.
- The development may be perceived as an unwelcome visual intrusion, particularly in more natural undisturbed settings.
- Dust emissions and dust plumes from maintenance vehicles accessing the site via gravel roads may evoke negative sentiments from surrounding viewers.
- The night time visual environment could be altered as a result of operational and security lighting at the proposed substations.

	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	L	M	M	Negative	M	M	M
With Mitigation	L	M	M	Negative	M	M	M
Can the impact be reversed?	YES – If the power lines are decommissioned						
Will impact cause irreplaceable loss of resources?	YES – there will be marginal loss of resources						
Can impact be avoided, managed or mitigated?	YES – mitigation measures can reduce impacts						
Mitigation measures to reduce residual risk or enhance opportunities:							
<ul style="list-style-type: none"> • Where possible, limit the number of maintenance vehicles using access roads. • Non-reflective surfaces should be utilised where possible. 							
Residual Impact	Yes – mitigation measures can reduce impacts						

Impact Phase: Cumulative Construction							
Potential impact description:							
Rating of cumulative visual impacts as a result of the renewable energy developments (including associated infrastructure) proposed nearby during construction							
<ul style="list-style-type: none"> • Large construction vehicles and equipment associated with nearby renewable energy developments will alter the natural character of the study area and expose a greater number of visual receptors to impacts associated with construction. • Visual intrusion of the additional construction activities may be exacerbated, particularly in more natural undisturbed settings. • Additional construction activities in the area would generate additional traffic on gravel roads in the area, thus resulting in increased impacts from dust emissions and dust plumes. • Additional areas of visual contrast may occur as a result of a surface disturbance at other renewable energy construction sites. Further alteration of the landscape and increased dust emissions could occur as a result of temporary stockpiling of soil at other renewable energy construction sites 							
	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	M	M	H	Negative	M	M	M
With Mitigation	M	M	M	Negative	M	M	M
Can the impact be reversed?	YES – The impact is partly reversible. The negative effects of construction will cease once construction is complete						
Will impact cause irreplaceable loss of resources?	YES – there will be significant loss of resources						
Can impact be avoided, managed or mitigated?	YES – mitigation measures can reduce impacts						
Mitigation measures to reduce residual risk or enhance opportunities:							
<ul style="list-style-type: none"> • Carefully plan to minimise the construction period and avoid construction delays. • Minimise vegetation clearing and rehabilitate cleared areas as soon as possible. • Vegetation clearing should take place in a phased manner. • Maintain a neat construction site by removing rubble and waste materials regularly. • Make use of existing gravel access roads, where possible. • Limit the number of vehicles and trucks travelling to and from the construction site, where possible. • Where possible, ensure that dust suppression techniques are implemented 							

<ul style="list-style-type: none"> ▪ on all access roads; ▪ in all areas where vegetation clearing has taken place; ▪ on all soil stockpiles. 	
Residual Impact	Yes – mitigation measures can reduce impacts

Impact Phase: Cumulative Operation							
<p>Potential impact description:</p> <p>Rating of cumulative visual impacts as a result of the renewable energy developments (including associated infrastructure) proposed nearby during operation.</p> <ul style="list-style-type: none"> • Additional renewable energy developments in the broader area will alter the natural character of the study area towards a more industrial landscape and expose a greater number of receptors to visual impacts. • Visual intrusion of multiple renewable energy developments may be exacerbated, particularly in more natural undisturbed settings. • Additional renewable energy facilities in the area would generate additional traffic on gravel roads, thus resulting in increased impacts from dust emissions and dust plumes. • The night time visual environment could be altered as a result of operational and security lighting at multiple renewable energy facilities in the broader area 							
	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	M	M	M	Negative	M	M	M
With Mitigation	M	M	M	Negative	M	M	M
Can the impact be reversed?			YES – If the WEF, power lines and other infrastructure are decommissioned				
Will impact cause irreplaceable loss of resources?			YES – there will be marginal loss of resources				
Can impact be avoided, managed or mitigated?			YES – mitigation measures can reduce impacts				
<p>Mitigation measures to reduce residual risk or enhance opportunities:</p> <ul style="list-style-type: none"> • Light fittings for security at night should reflect the light toward the ground (except for aviation lighting) and prevent light spill. • The operations and maintenance buildings should not be illuminated at night, if possible. • The operation and maintenance buildings should be painted with natural tones that fit with the surrounding environment. Non-reflective surfaces should be utilised where possible. • As far as possible, limit the number of maintenance vehicles, which are allowed to access the sites. • Bury cables under the ground where possible. • Ensure that dust suppression techniques are implemented on all access roads. • Select the alternatives that will have the least impact on visual receptors. • Institute a rigorous planting regime along sections of the project boundaries and along major transportation routes. Buildings and similar structures must be in keeping with regional planning policy, especially the principles of critical regionalism (namely sense of place, sense of history, sense of nature, sense of craft and sense of limits). 							
Residual Impact			Yes – mitigation measures can reduce impacts				

9.7 Social

The key social issues associated with the grid infrastructure will be the same as the issues associated with the establishment of the proposed WEFs. In this regard, the construction activities associated with the establishment of the grid infrastructure are likely to overlap with and be undertaken at the same time as the construction activities associated with the

establishment of the proposed WEFs. It is also reasonable to assume that the majority of construction-related activities associated with the construction of the grid infrastructure will be undertaken by the same team of construction workers appointed to establish the proposed WEFs. It is therefore not possible to fully separate and distinguish between the social impacts associated with the construction phase of the proposed WEFs and the associated grid infrastructure. In addition, one must also be aware of double counting.

The key social issues associated with the construction phase apply to all components of the grid infrastructure and include:

Potential positive impacts

- Creation of employment opportunities.

Potential negative impacts

- Impacts associated with the presence of construction workers on local communities;
- Impacts related to the potential influx of jobseekers;
- Increased risks to livestock and farming infrastructure associated with the construction-related activities and presence of construction workers on the site;
- Increased risk of grass fires associated with construction-related activities;
- Noise, dust and safety impacts of construction-related activities and vehicles; and
- Impact on productive farmland.

Impact Phase: Construction							
Potential impact description: Creation of employment opportunities during the construction phase							
	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	M	L	L	Positive	L	M	H
With Enhancements	H	L	H	Positive	M	H	H
Can the impact be reversed?			YES – by not implementing the project				
Will impact cause irreplaceable loss of resources?			NO				
Can impact be avoided, managed or mitigated?			YES				
Mitigation measures to reduce residual risk or enhance opportunities:							
Employment							
<ul style="list-style-type: none"> • Where reasonable and practical the proponent should appoint local contractors and implement a 'locals first' policy, especially for semi and low-skilled job categories. Due to the low skills levels in the area, the majority of skilled posts are likely to be filled by people from outside the area; • Where feasible, efforts should be made to employ local contractors that are compliant with Broad-Based Black Economic Empowerment (BBBEE) criteria; • Before the construction phase commences the proponent should meet with representatives from the ULM and IYLM to establish the existence of a skills database for the area. If such as database exists, it should be made available to the contractors appointed for the construction phase; • The local authorities, relevant community representatives and local farmers should be informed of the final decision regarding the project and the potential job opportunities for locals and the employment procedures that the proponent intends following for the construction phase of the project; • Where feasible training and skills development programmes for local workers should be initiated prior to the initiation of the construction phase; • The recruitment selection process should seek to promote gender equality and the employment of women wherever possible. 							
Business							

- The proponent should liaise with the ULM and IYLM with regards the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers (e.g. construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction contractors. These companies should be notified of the tender process and invited to bid for project-related work;
- Where possible, the proponent should assist local BBBEE companies in completing and submitting the required tender forms and associated information.
- The ULM and IYLM, in conjunction with the local business sector and representatives from the local hospitality industry, should identify strategies aimed at maximising the potential benefits associated with the project.

Note that while preference to local employees and companies is recommended, it is recognised that a competitive tender process may not guarantee the employment of local labour for the construction phase.

Impact Phase: Construction

Potential impact description: Potential risk to the safety of farmers and farmworkers, livestock and damage to farm infrastructure associated with the movement of construction workers in and to the site

	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	M	L	M	Negative	M	M	H
With Mitigation	M	L	L	Negative	L	M	H
Can the impact be reversed?	YES – by repairing damage and compensating for stock losses etc.						
Will impact cause irreplaceable loss of resources?	NO						
Can impact be avoided, managed or mitigated?	YES						

Mitigation measures to reduce residual risk or enhance opportunities:

- The proponent should enter into an agreement with the local farmers in the area whereby damages to farm property etc. during the construction phase proven to be associated with the construction activities will be compensated for. The agreement should be signed before the construction phase commences;
- Contractors appointed by the proponent should provide daily transport for workers to and from the site. This would reduce the potential risk of trespassing on the remainder of the farm and adjacent properties;
- The proponent should consider the option of establishing an MF (see above) that includes local farmers and develop a Code of Conduct for construction workers. This committee should be established prior to the commencement of the construction phase. The Code of Conduct should be signed by the proponent and the contractors before the contractors move onto the site;
- The proponent should hold contractors liable for compensating farmers in full for any stock losses and/or damage to farm infrastructure that can be linked to construction workers. This should be contained in the Code of Conduct to be signed between the proponent, the contractors and neighbouring landowners. The agreement should also cover losses and costs associated with fires caused by construction workers or construction-related activities (see below);
- The Environmental Management Programme (EMP) should outline procedures for managing and storing waste on-site, specifically plastic waste that poses a threat to livestock if ingested;
- Contractors appointed by the proponent must ensure that all workers are informed at the outset of the construction phase of the conditions contained in the Code of Conduct, specifically consequences of stock theft and trespassing on adjacent farms.
- Contractors appointed by the proponent must ensure that construction workers who are found guilty of trespassing, stealing livestock and/or damaging farm infrastructure are dismissed and charged. This should be contained in the Code of Conduct. All dismissals must be in accordance with South African labour legislation;
- The housing of construction workers on the site should be limited to security personnel.

Impact Phase: Construction							
Potential impact description: Potential loss of livestock, crops and houses, damage to farm infrastructure and a threat to human-like associated with an increased incidence of grass fires							
	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	M	L	M	Negative	M	M	H
With Mitigation	M	L	L	Negative	L	M	H
Can the impact be reversed?			YES – by repairing damage and compensating for damages and losses.				
Will impact cause irreplaceable loss of resources?			NO				
Can impact be avoided, managed or mitigated?			YES				
Mitigation measures to reduce residual risk or enhance opportunities:							
<ul style="list-style-type: none"> The proponent should enter into an agreement with the local farmers in the area whereby losses associated with fires that can be proven to be associated with the construction activities will be compensated for. The agreement should be signed before the construction phase commences; Contractor should ensure that open fires on the site for cooking or heating are not allowed except in designated areas; No smoking should be permitted on-site, except in designated areas; Contractor should ensure that construction-related activities that pose a potential fire risk, such as welding, are properly managed and are confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include avoiding working in high wind conditions when the risk of fires is greater. In this regard special care should be taken during the high risk dry, windy summer months; Contractor to provide adequate fire-fighting equipment on-site; Contractor to provide fire-fighting training to selected construction staff; No construction staff, with the exception of security staff, to be accommodated on-site overnight; As per the conditions of the Code of Conduct, in the event of a fire proven to be caused by construction workers and or construction activities, the appointed contractors must compensate farmers for any damage caused to their farms. The contractor should also compensate for the fire-fighting costs borne by farmers and local authorities. 							

Impact Phase: Construction							
Potential impact description: Potential dust and safety impacts and damage to road surfaces associated with the movement of construction-related traffic to and from the site							
	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	M	L	M	Negative	M	M	H
With Mitigation	M	L	L	Negative	L	M	H
Can the impact be reversed?			YES – by rehabilitating disturbed areas				
Will impact cause irreplaceable loss of resources?			NO				
Can impact be avoided, managed or mitigated?			YES				
Mitigation measures to reduce residual risk or enhance opportunities:							
<ul style="list-style-type: none"> The contractor must ensure that damage caused by construction-related traffic to internal farm roads is repaired on a regular basis throughout the construction phase. The costs associated with the repair must be borne by the contractor; 							

- Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis, adhering to speed limits and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers;
- All vehicles must be road-worthy, and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits;
- The Contractor should ensure that workers are informed that no waste can be thrown out of the windows while being transported to and from the site. Workers who throw waste out windows should be fined;
- The Contractor should be required to collect waste generated on-site. All waste should be transported to the local landfill site.
- EMP measures (and penalties) should be implemented to ensure farm gates are closed at all times;
- EMP measures (and penalties) should be implemented to ensure speed limits are adhered to at all times.

The social impacts related to the operational phase include:

Potential positive impacts

- Creation of employment opportunities.

Potential negative impacts

- The visual impacts and associated impact on the sense of place;
- Impact on tourism; and
- Impact on property values.

Impact Phase: Operational							
Potential impact description: Creation of employment opportunities							
	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	M	L	L	Positive	L	M	H
With Enhancements	M	L	L	Positive	L	M	H
Can the impact be reversed?			YES – by rehabilitating disturbed areas				
Will impact cause irreplaceable loss of resources?			NO				
Can impact be avoided, managed or mitigated?			YES				
Mitigation measures to reduce residual risk or enhance opportunities:							
Employment							
<ul style="list-style-type: none"> • Where reasonable and practical the proponent should appoint local contractors and implement a 'locals first' policy, especially for semi and low-skilled job categories. Due to the low skills levels in the area, the majority of skilled posts are likely to be filled by people from outside the area; • Where feasible, efforts should be made to employ local contractors that are compliant with Broad-Based Black Economic Empowerment (BBBEE) criteria; • Before the construction phase commences the proponent should meet with representatives from the ULM and IYLM to establish the existence of a skills database for the area. If such as database exists, it should be made available to the contractors appointed for the construction phase; • The local authorities, relevant community representatives and local farmers should be informed of the final decision regarding the project and the potential job opportunities for locals and the employment procedures that the proponent intends following for the construction phase of the project; • Where feasible training and skills development programmes for local workers should be initiated prior to the initiation of the construction phase; • The recruitment selection process should seek to promote gender equality and the employment of women wherever possible. 							
Business							
<ul style="list-style-type: none"> • The proponent should liaise with the ULM and IYLM with regards the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers (e.g. construction companies, catering companies, waste collection companies, security companies etc.) prior to the 							

<p>commencement of the tender process for construction contractors. These companies should be notified of the tender process and invited to bid for project-related work;</p> <ul style="list-style-type: none"> • Where possible, the proponent should assist local BBBEE companies in completing and submitting the required tender forms and associated information. • The ULM and IYLM, in conjunction with the local business sector and representatives from the local hospitality industry, should identify strategies aimed at maximising the potential benefits associated with the project. <p>Note that while preference to local employees and companies is recommended, it is recognised that a competitive tender process may not guarantee the employment of local labour for the construction phase.</p>
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Impact Phase: Operational							
Potential impact description: Visual impact associated with the proposed HBH Corridor option on the areas rural sense of place.							
	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	M	M	M	Negative	M	M	M
With Mitigation	M	M	M-L	Negative	M	M	M
Can the impact be reversed?			YES – by removing turbine and grid infrastructure				
Will impact cause irreplaceable loss of resources?			NO				
Can impact be avoided, managed or mitigated?			YES				
Mitigation measures to reduce residual risk or enhance opportunities: Based on the findings of the SIA, the HBH Corridor Option will have a higher social impact than the approved San Kraal / Phezukomoya corridor, which is located within the site boundary. The approved San Kraal / Phezukomoya corridor, therefore, remains the preferred option.							

Impact Phase: Operational							
Potential impact description: Potential impact on property values linked to the visual impact associated with the proposed WEF and associated infrastructure and the potential impact on the areas rural sense of place.							
	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	M	M	M	Negative	M	M	M
With Mitigation	M	M	L	Negative	L	M	M
Can the impact be reversed?			YES – by removing turbine and grid infrastructure				
Will impact cause irreplaceable loss of resources?			NO				
Can impact be avoided, managed or mitigated?			YES				
Mitigation measures to reduce residual risk or enhance opportunities: The recommendations contained in the VIA should be implemented.							

Impact Phase: Operational							
Potential impact description: Potential impact of the WEF and associated infrastructure on local tourism							

	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	M	M	L	Negative	L	M	H
With Mitigation	M	M	L	Negative	L	M	H
Can the impact be reversed?	YES – by removing turbines						
Will impact cause irreplaceable loss of resources?	NO						
Can impact be avoided, managed or mitigated?	YES						
Mitigation measures to reduce residual risk or enhance opportunities: <ul style="list-style-type: none"> The recommendations contained in the VIA should be implemented; and The proponent should consider the establishment of a visitor centre should the proposed WEF be approved. 							

The number of people employed during the operational phase will be limited and linked to maintenance and repairs. The work is likely to be undertaken by contractors that are also employed on other projects. The social impacts associated with decommissioning will, therefore, be limited. The decommissioning phase will also create employment opportunities. This will represent a positive impact. These jobs will, however, be temporary.

Impact Phase: Decommissioning							
Potential impact description: Social impacts associated with the decommissioning phase are linked to the loss of jobs and associated income.							
	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	M	L	L	Negative	L	M	H
With Mitigation	M	L	L	Negative	L	M	H
Can the impact be reversed?	YES – by removing infrastructure						
Will impact cause irreplaceable loss of resources?	NO						
Can impact be avoided, managed or mitigated?	YES						
Mitigation measures to reduce residual risk or enhance opportunities: <ul style="list-style-type: none"> The proponent should ensure that retrenchment packages are provided where applicable; and All structures and infrastructure associated with the proposed facility should be dismantled and transported off-site on decommissioning 							

Impact Phase: Cumulative Visual Impact							
Potential impact description: Cumulative visual impact associated with the establishment of a WEF and the associated infrastructure on the areas rural sense of place and character of the landscape							
	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	M	H	M	Negative	M	M	M
With Mitigation	M	M	M	Negative	M	M	M
Can the impact be reversed?	YES – by removing turbines						

Will impact cause irreplaceable loss of resources?	NO
Can impact be avoided, managed or mitigated?	YES
Mitigation measures to reduce residual risk or enhance opportunities: <ul style="list-style-type: none"> The final placement of wind turbines associated with the proposed WEF should be discussed with the affected landowners; and The recommendations of the VIA should be implemented. 	

9.8 Traffic

Impact Phase: Construction and Decommissioning							
Potential impact description: Increase traffic volumes and disruption on the route and access points on-site							
	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	M	L	L	Negative	H	L	H
With Mitigation	L	L	L	Neutral	H	L	H
Can the impact be reversed?	Through proper coordination of arrivals and departures of construction-related traffic to avoid high numbers of vehicles arriving at once. Provision of traffic management controls at access points to the site essential.						
Will impact cause irreplaceable loss of resources?	Road safety concerns may lead to higher risk and potential of fatal accidents.						
Can impact be avoided, managed or mitigated?	YES - Implementation of a traffic management plan and road upgrades where necessary (intersection/access points/dedicated turning lanes) and may manage/mitigate safety concerns and minimise traffic disruptions.						
Mitigation measures to reduce residual risk or enhance opportunities: <ul style="list-style-type: none"> Arrival and departure of abnormal and heavy vehicle traffic should be coordinated and distributed throughout the day. The community must be informed before the start of site activities. Additional traffic management control measures at site accesses must be implemented, which may include warning and construction vehicles signage and/or flagmen to assist during detours or temporary road closures. Use of access point A and C is recommended subject to approval from SANRAL. Access points must be priority stop-controlled, with the national roads as a priority. Provision must be made for 500 m acceleration lanes, to allow trucks turning onto a road to accelerate before entering the traffic stream, and road widened to allow for dedicated right turn and left turn (auxiliary lanes) lanes off the main road and must consider the turning circles of the vehicles expected to need to access the site. Routine maintenance works (repairs and reseals) on the roads to maintain road surface condition. 							

Impact Phase: Construction and Decommissioning							
Potential impact description: Air pollution from dust, greenhouse gas emissions from vehicles and increased noise levels from vehicle traffic							
	Intensity	Extent	Duration	Status	Probability	Significance	Confidence
Without Mitigation	L	L	L	Negative	H	L	H

With Mitigation	L	L	L	Negative	H	L	H
Can the impact be reversed?	NO						
Will impact cause irreplaceable loss of resources?	NO						
Can impact be avoided, managed or mitigated?	YES – Through noise and dust control techniques						
Mitigation measures to reduce residual risk or enhance opportunities: <ul style="list-style-type: none"> • Unpaved road soils must be watered or covered with gravel to lessen dust generation. • Vehicles transporting materials that can be blown away and cause dust must be securely covered and adhere to speed limits. • The community must be informed before the start of site activities. • Emissions will have short-term impacts on the immediate surrounding areas. 							

It is anticipated that cumulative traffic impacts will only have a noticeable impact in the event that all projects are approved, and all the construction phases coincide, which is unlikely to occur. In assuming that the grid construction and decommissioning phases will run parallel to that of the four proposed WEF's, it is anticipated that the impact on the LOS on the N9 and N10 will maintain at acceptable levels.

10 SUMMARY OF FINDINGS

This BA Report has provided a description of the proposed Grid Infrastructure. It has also discussed the need and desirability of the proposed project. The environmental legislation and planning contexts for the proposed Grid Infrastructure has been documented, including the proposed site's baseline environment. Specialist investigations and assessments of potential impacts have been conducted for the following areas of study:

- Geology, Soils and Agriculture;
- Freshwater and Wetlands;
- Flora and Terrestrial Fauna;
- Bats;
- Avifauna;
- Heritage;
- Visual;
- Social; and
- Traffic and Transport.

Due to the low rainfall in the area, there is little potential for rain-fed arable agriculture in the area, and as such, arable production would be very problematic without irrigation. There are virtually no high potential soils in the study area and very few medium potential soils.

The aquatic systems of the study area are largely functional and/or have limited impacts as a result of current land-use practices. Current impacts are mostly associated with grazing, livestock trampling, the large number of dams and alien Poplar trees. It is considered that the proposed layout for the facility seems to have limited impact on the aquatic environment as the proposed activities have avoided the delineated watercourses other than a small number of new (ca. 5) watercourse crossings.

The proposed development is likely to generate low impacts on fauna and flora after mitigation. No high impacts that cannot be avoided were observed and from a flora and terrestrial fauna perspective, there are no reasons to oppose the development of the grid connection and associated infrastructure. As such, the development can be supported from a terrestrial ecological view.

No fruit bats were observed at the proposed development sites during pre-construction bat monitoring, nor any active bat roosts. As such, it is unlikely that there will be interactions between fruit bats and the grid connection lines of the proposed development, eliminating the risk of mortality in fruits bats, and a low risk of destroying roosts during the construction process.

A total of 190 bird species could potentially occur in the study area. Of these, 32 are classified as priority species. Of these, 12 are classified as locally threatened (Taylor et al. 2015). A total of 15 priority species were recorded during the pre-construction monitoring, including 6 locally threatened species. It was found that potential impacts include the displacement of priority avifauna due to the disturbance and habitat transformation associated with the construction and decommissioning of the proposed powerlines, substations, and batching plant. During the operational phase, potential impacts were found to include the mortality of priority avifauna due to collisions with the earth wire of the proposed 132 kV powerlines and 400 kV turn-ins and electrocution of avifauna in the substation yards.

A small number of archaeological and historical occurrences and sites were identified, no stratified sites were located, and no cultural material other than stone was found during this assessment. None of the heritage sites or occurrences identified in this assessment will be directly affected by the construction and installation of various collector, step-up and switching substations or by the overhead lines and no site-specific mitigation is thus proposed. Any impacts on currently unidentified heritage resources arising from the activities covered in the assessment will be limited to the footprint of any disturbance and thus localised in extent. The likelihood of new sites or material being found during earthworks is considered to be extremely low.

One of the eleven potentially sensitive visual receptors identified within the study area is considered to be a sensitive receptor as it is linked to tourism activities. Three receptors are expected to experience high levels of visual impact from the proposed grid connection infrastructure, one of which is located inside the approved section of the assessment corridor for the proposed southerly HBH Corridor. No objections have been raised by the occupants of this farmstead in respect of the proposed power lines.

In relation to the construction phase of the development, the social significance of all potential negative impacts with mitigation was found to be low negative. During the operational phase, the HBH Corridor option will have a higher social impact than the approved San Kraal / Phezukomoya corridor. From a social perspective, the approved San Kraal / Phezukomoya corridor remains the preferred option. The impact of the proposed development on the property values in the area is likely to be low and social findings indicated that such development does not impact on tourist routes.

The overall cumulative impact of the area's sense of place does not represent a fatal flaw for the proposed Grid Infrastructure. The significance of cumulative impacts on services with mitigation was rated as low and the potential cumulative impact of the establishment of renewable energy facilities, including the associated grid infrastructure, on the local economy, is rated as a high.

The construction of the proposed grid connection has the potential to result in an increase in traffic volumes, distributed to the surrounding road network. Motorists travelling along N9 and N10 are expected to experience moderate impacts from the proposed grid connection infrastructure. The impact of the trips generated during the construction and decommissioning phase is anticipated to increase the ADT between 2 % and 4 %. This is likely to have a low magnitude of impact on the existing road network capacity, in addition to the fact that this limited impact will be for a short period of time.

11 CONCLUSION

Renewable energy and associated grid infrastructure is strongly supported at a national, provincial and local level. The development of and investment in renewable energy is supported by the National Development Plan (NDP), New Growth Path Framework and National Infrastructure Plan, which all make reference to renewable energy. At a provincial level, the development of renewable energy is supported by the Northern Cape Provincial Growth and Development Strategy and Northern Cape Provincial Spatial Development Framework, as well as the Eastern Cape Provincial Development Plan (2014) and the Eastern Cape Climate Change Response Strategy. The PKSDM IDP highlights the importance of renewable energy for the area.

However, the provincial and local policy and planning documents also make reference to the importance of tourism and the region's natural resources. Care, therefore, needs to be taken to ensure that the siting of renewable energy facilities (including wind farms and the associated grid infrastructure) does not impact negatively on the area's tourism potential.

Taking into consideration the findings of the BA process for the proposed development and the fact that recommended mitigation measures have been used to inform the project design, it is the opinion of the Environmental Assessment Practitioner (EAP) that the majority of negative impacts associated with the implementation of the proposed project have been mitigated to acceptable levels. Figure 11 reflects the environmental sensitivity of the proposed development. While the residual impacts of the project will have an impact on the local environment, the extent of the benefits associated with the implementation of the projects will impact a much larger group of people, in terms of renewable energy supply and positive local and regional economic upliftment.

The study has concluded that there are no negative high residual impacts, including potential cumulative impacts associated with the proposed development and that the authorisation should be granted.

12 IMPACT STATEMENT

All specialist studies have indicated that either of the grid connection routes proposed would be acceptable from an environmental perspective.

No environmental fatal flaws have been identified and should all the recommended mitigation measures be implemented by the applicant, it is anticipated that, overall, impacts would be of low negative significance (biophysical impacts) or of medium positive significance (social upliftment). With reference to the information provided at this stage of the project cycle, the confidence in the assessment is regarded as acceptable.

Consideration must be given to the fact that this proposed development is dependent on the approval of the amendment applications for the San Kraal WEF and Phezukomoya WEF (separate applications), and should the latter not be approved, the likelihood of this project being implemented is low. The reason for the separation of the project components in terms of the application process rests with the fact that the Environmental Authorisation for the proposed grid connection may be transferred to Eskom and would not be controlled by the Applicant.

Taking into consideration the findings of the BA process for the proposed project and the fact that recommended mitigation measures have been used to inform the project layout design, it is the opinion of the Environmental Assessment Practitioner (EAP) that the majority of negative impacts associated with the implementation of the proposed project have been mitigated to acceptable levels.

Overall, it is recommended that the Grid Infrastructure is authorised, subject to the implementation of the recommended mitigation measures and management actions contained in the specialist reports and the EMPr.

12.1 Conditions to be included in the EA

All recommendations and proposed mitigation measures detailed in the specialists report and the EMPr must be implemented and adhered to.

APPENDIX A: EAP CV AND DECLARATION OF INDEPENDENCE

CURRICULUM VITAE

Ashlin Bodasing

Technical Director and Environmental Assessment Practitioner

Email: ashlinb@arcusconsulting.co.za Tel: +27 (0) 21 412 1529



Specialisms

- Environmental Impact Assessments
- Environmental Management Plans
- Environmental Feasibility Studies
- Environmental Due Diligence and Compliance
- Client Relationship Management

Summary of Experience

Ashlin Bodasing is a Technical Director at Arcus Consultancy Services South Africa (Pty) Ltd. She manages the Arcus South African office and the team based in Cape Town. Having obtained her Bachelor of Social Science Degree (Geography and Environmental Management) from the University of Kwa-Zulu Natal; she has over fourteen years' experience in the environmental consulting industry in southern Africa. She has gained extensive experience in the field of Integrated Environmental Management, environmental impact assessments and public participation. She has also been actively involved in a number of industrial and infrastructural projects, including electricity power lines and substations; road and water infrastructure upgrades and the installation of telecommunication equipment, green and brown field coal mines, as well as renewable energy facilities, both wind and solar. Ashlin has excellent Project Management experience and has gained major project experience in the development of Environmental Impact Assessments, Environmental Management Plans and the monitoring of construction activities. Her areas of expertise include project management, environmental scoping and impact assessments, environmental management plans, environmental compliance monitoring and environmental feasibility studies. Experience also includes International Finance Corporation Performance Standards and World Bank Environmental Guidelines environmental due diligence reviews. She has worked in Mozambique, Namibia, Botswana, Lesotho and Zimbabwe.

Professional History

- 2017 – Present** – Technical Director, Arcus Consultancy Services South Africa
- 2015 - 2017** – Team Leader, Arcus Consultancy Services Ltd
- 2012 – 2015** – Lead Environmental Officer, Tweefontein Optimisation Project, Glencore / Xstrata Coal Mine, Witbank, Mpumalanga, South Africa (secondment)
- 2007-2015** - Senior Environmental Assessment Practitioner, Parsons Brinckerhoff Africa
- 2005-2007** – Environmental Consultant, WSP Environment and Energy

Ashlin spent over 2 years at the Glencore (previously Xstrata Coal SA) – Tweefontein Optimisation Project, as the sole environmental officer permanently on site overseeing all their construction projects, ensuring contractor compliance to EMP and Environmental Authorisations. This included the construction of the internal and external infrastructure packages. Roles include ensuring all construction and development are in line with the EIA and EMP for the project. Areas of responsibility include the Mine Infrastructure Area, the Explosives Magazine Area, construction of a secondary school, construction of residential houses, and the rail load out facility. Role also included review of environmental impact assessment applications and reports submitted to the department of environmental affairs for the project.

Qualifications and Professional Interests

- **University of Kwa-Zulu Natal, 2004**
Bachelor of Social Science (Geography and Environmental Management)

Project Experience

Environmental Impact Assessments

- **Highlands North, South and Central Wind Energy Facilities, 2018-present.**
Project Director (client liaison) and Lead EAP.

CURRICULUM VITAE

- **Paulputs Wind Energy Facility, 2018-present.** Project Director (client liaison) and Lead EAP.
- **San Kraal Wind Energy Facility, 2016- 2018.** Project Director (client liaison) and Lead EAP.
- **Phezukomoya Wind Energy Facility, 2016 – 2018.** Project Director (client liaison) and Lead EAP.
- **Kolkies and Karee Wind Energy Facilities, 2016-2016.** Project Director (Client liaison) and Lead EAP.
- **Komsberg East and West Wind Energy Facilities 2015-2016.** Project Director (Client Liaison) and EAP.
- **Umsinde Emoyeni Wind Energy Facilities, 2015-2018.** Project Director (Client Liaison) and EAP.

Ecological Impact Assessments and Monitoring

- **Confidential Wind Farm, 2017-2018, Northern Cape Province.** Project Director (Client Liaison), coordination and management of ecologists (bird and bat), review of technical and specialists impact assessments.
- **Paulputs Wind Energy Facility 2017-present, Northern Cape Province.** Project Director (Client Liaison), coordination and management of ecologists (bird and bat), review of technical and specialists impact assessments.
- **Highlands Wind Energy Facilities 2017 – 2018, Northern Cape Province.** Project Director (Client Liaison), coordination and management of ecologists (bird and bat), review of technical and specialists impact assessments.
- **Komsberg Wind Farms, 2015-2016.** Project Director (Client Liaison), coordination and management of ecologists (bird and bat), review of technical and specialists impact assessments.
- **Kolkies and Karee Wind Energy Facilities 2015-2016.** Project Director (Client Liaison), coordination and management of bird and bat specialists and review of technical and impact assessment reports.
- **Umsinde Wind Energy Facilities, Additional Bird Monitoring.** Project Director. Coordination and management of bird specialists and review of technical reports.
- **Kap Vley Wind Energy Facility, Bird and Bat Pre-Construction Monitoring.** Project Director. Coordination and management of bird and bat specialists, review of technical reports.
- **Highlands Wind Energy Facility, Bird and Bat Pre-Construction Monitoring.** Project Director. Coordination and management of bird and bat specialists, review of technical reports.
- **Hopefield Wind Farm –Operational Monitoring.** Project Manager. Coordination and management of bird and bat specialists, review of technical reports.
- **Gouda Wind Farm – Operation Monitoring.** Project Director. Coordination and management of bird and bat specialists, review of technical reports.

Feasibility Studies and Due Diligence Reviews

- **Ecological due diligence for IFC PS6 – Wind Energy Developments:** Project Manager. Review and reporting on bird and bat specialist reports to IFC/World Bank Standards – Various sites across South Africa.
- **Power Plant – Ghana.** Project Manager Compilation of environmental due diligence for refinancing, IFC and World Bank Standards, on behalf of Botswana Development Corporation.
- **Ecological Feasibility Study.** Project Director. Review of the feasibility of a site for a wind energy facility in relation to bats.
- **Environmental Feasibility Study.** Project Director and EAP. Review of a proposed site for the development of industrial facility.

Previous Project Experience

CURRICULUM VITAE

Environmental Scoping and Impact Assessments and Project Management for:

- eThekweni Municipality
- Moreland Developments
- RBCH – Bulk Materials and Handling Facility
- SAPREF
- Mittal Steel Permit Amendment
- Transnet Projects
- ArcelorMittal South Africa
- MCA-Lesotho
- Talbot Group Holdings (Australian Mining Company)
- Ncondezi Energy – Mozambique

Environmental Management Plans and Compliance Monitoring

- Nongoma Road Monitoring – Compliance Monitoring
- eThekweni Municipality - Taxi Holding Areas: Canberra Road and Umgeni Road Compilation of the EMP; and Bi-monthly compliance monitoring (site visits) and reporting.
- EMP for Kwezi V3 - Kwamashu Fuel Tank Exemption
- eThekweni Municipality - Ridgeview Road – Compliance Monitoring
- eThekweni Municipality and Merz and McLellen - Phoenix Overhead Transmission Lines – Compliance Monitoring
- eThekweni Municipality and Merz and McLellen - E8546 E8699 Compliance Monitoring
- eThekweni Municipality and Merz and McLellen - Environmental Assessment and EMP
- EMP for eThekweni Municipality - Parlock Switching Station

Training and Auditing

- Petronet Alien Plant Training - Compilation of the training material for alien plant identification and removal methods.
- eThekweni Municipality - Taxi Holding Areas – Canberra and Umgeni Road - Contactor and workforce training.
- eThekweni Municipality - Kingsway Road Taxi Rank - Contactor and workforce training.

Environmental Reviews / Terms of Reference

- Biotherm Energy - Environmental Project Manager: Independent review of environmental impact assessment reports and management plans compiled for 3 wind farms in the Western Cape and 2 PV Solar Plants in the Northern Cape, to ensure compliance to IFC and World Bank Standards.
- Government of Zimbabwe – Hwange Power Station - Environmental Project Manager: Compilation of the Terms of Reference for Environmental Management Plan and Environmental and Social Audit of the Hwange Power Plant in Zimbabwe.

Pre-Feasibility Studies

- Pre-feasibility studies for eThekweni Municipality, Investec, Sekoko Coal Resources, Mulilo, Sekoko Mining and MCA-Lesotho for renewable energy, coal mines and power plants.



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

File Reference Number:	(For official use only)
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

Basic Assessment for the Proposed Electrical Grid Connection and Associated Infrastructure for the San Kraal Split 1, Hartebeesthoek East, Phezukomoya Split 1, and Hartebeesthoek West Wind Energy Facilities, Eastern and Northern Cape Provinces

Kindly note the following:

1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
5. All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Private Bag X447
Pretoria
0001

Physical address:

Department of Environmental Affairs
Attention: Chief Director: Integrated Environmental Authorisations
Environment House
473 Steve Biko Road
Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

1. ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP) INFORMATION

EAP Company Name:	Arcus Consultancy Services South Africa (Pty) Ltd		
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	4	Percentage Procurement recognition
			100%
EAP name:	Ashlin Bodasing		
EAP Qualifications:	Bachelor of Social Science (Geography and Environmental Management)		
Professional affiliation/registration:	None		
Physical address:	Office 607, Cube Workspace, Icon Building, c/o Long Street and Hans Strijdom Avenue, Cape Town		
Postal address:	Same as above		
Postal code:	8001	Cell:	0763408914
Telephone:	0214121529	Fax:	
E-mail:	ashlinb@arcusconsulting.co.za		

The appointed EAP must meet the requirements of Regulation 13 of GN R982 of 04 December 2014, as amended.

2. DECLARATION BY THE EAP

I, Ashlin Bodasing, declare that –

- I act as the independent environmental assessment practitioner in this application;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I will take into account, to the extent possible, the matters listed in Regulation 13 of the Regulations when preparing the application and any report relating to the application;
- I undertake to disclose to the applicant and the Competent Authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the Competent Authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the Competent Authority, unless access to that information is protected by law, in which case it will be indicated that such information exists and will be provided to the Competent Authority;
- I will perform all obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I am aware of what constitutes an offence in terms of Regulation 48 and that a person convicted of an offence in terms of Regulation 48(1) is liable to the penalties as contemplated in Section 49B of the Act.

Disclosure of Vested Interest (delete whichever is not applicable)

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations;
- I have a vested interest in the proposed activity proceeding, such vested interest being:

Bodasing

Signature of the Environmental Assessment Practitioner

Arcus Consultancy Services South Africa (Pty) Ltd

Name of Company:

17/09/2019

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Ashlin Bodasing, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.

Bodasing

Signature of the Environmental Assessment Practitioner

Arcus Consultancy Services South Africa (Pty) Ltd

Name of Company

17/09/2019

Date

S.

Signature of the Commissioner of Oaths

17/09/2019

Date

certified a true copy of the original

S.

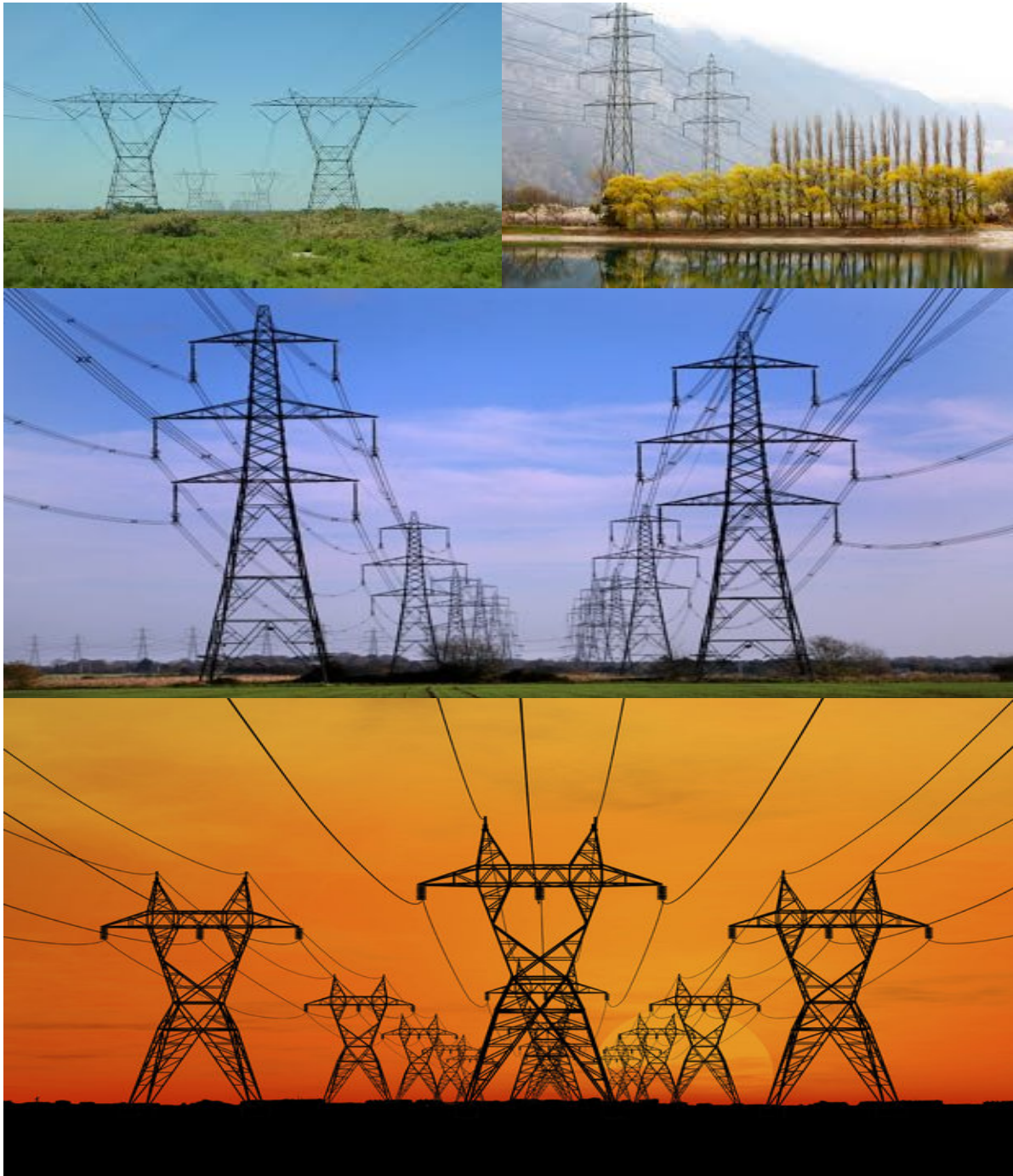
Sage Kruger
Commissioner of Oaths
Practising Attorney SA
ENSafrica
1 North Wharf Square
Loop Street Cape Town 8001

17/09/2019



APPENDIX B: GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME

APPENDIX B
GENERIC ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) FOR THE
DEVELOPMENT AND EXPANSION FOR OVERHEAD ELECTRICITY
TRANSMISSION AND DISTRIBUTION INFRASTRUCTURE



environmental affairs

Department:
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REPUBLIC OF SOUTH AFRICA

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INTRODUCTION

1. Background

The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) requires that an environmental management programme (EMPr) be submitted where an environmental impact assessment (EIA) has been identified as the environmental instrument to be utilised as the basis for a decision on an application for environmental authorisation (EA). The content of an EMPr must either contain the information set out in Appendix 4 of the Environmental Impact Assessment Regulations, 2014, as amended, (EIA Regulations) or must be a generic EMPr relevant to an application as identified and gazetted by the Minister in a government notice. Once the Minister has identified, through a government notice, that a generic EMPr is relevant to an application for EA, that generic EMPr must be applied by all parties involved in the EA process, including, but not limited to, the applicant and the competent authority (CA).

2. Purpose

This document constitutes a generic EMPr relevant to applications for the development or expansion of overhead electricity transmission and distribution infrastructure, and all listed and specified activities necessary for the realisation of such infrastructure.

3. Objective

The objective of this generic EMPr is to prescribe and pre-approve generally accepted impact management outcomes and impact management actions, which can commonly and repeatedly be used for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of overhead electricity transmission and distribution infrastructure. The use of a generic EMPr is intended to reduce the need to prepare and review individual EMPrs for applications of a similar nature.

4. Scope

The scope of this generic EMPr applies to the development or expansion of overhead electricity transmission and distribution infrastructure requiring EA in terms of NEMA, i.e. with a capacity of 33 kilovolts or more. This generic EMPr applies to activities requiring EA, mainly activity 11 and 47 of the Environmental Impact Assessment Regulations Listing Notice 1 of 2014, as amended, and activity 9 of the Environmental Impact Assessment Regulations Listing Notice 2 of 2014, as amended, and all associated listed or specified activities necessary for the realisation of such infrastructure.

5. Structure of this document

This document is structured in three parts with an Appendix as indicated in the table below:

Part	Section	Heading	Content
A		Provides general guidance and information and is not legally binding	Definitions, acronyms, roles & responsibilities and documentation and reporting.
B	1	Pre-approved generic EMPr template	<p>Contains generally accepted impact management outcomes and impact management actions required for the avoidance, management and mitigation of impacts and risks associated with the development or expansion of overhead electricity transmission and distribution infrastructure, which are presented in the form of a template that has been pre-approved.</p> <p>The template in this section is to be completed by the contractor, with each completed page signed and dated by the holder of the EA prior to commencement of the activity.</p> <p>Where an impact management outcome is not relevant, the words “not applicable” can be inserted in the template under the “responsible persons” column.</p> <p>Once completed and signed, the template represents the EMPr for the activity approved by the CA and is legally binding. The template is not required to be submitted to the CA as once the generic EMPr is gazetted for implementation, it has been approved by the CA.</p> <p>To allow interested and affected parties access to the pre-approved EMPr template for consideration through the decision-making process, the EAP on behalf of the applicant /proponent must make the hard copy of this EMPr available at a public location and where the applicant has a website, the EMPr should also be made available on such publicly accessible website.</p>
	2	Site specific information	Contains preliminary infrastructure layout and a declaration that the applicant/holder of the EA will comply with the pre-approved generic EMPr

Part	Section	Heading	Content
			<p>template contained in <u>Part B: Section 1</u>, and understands that the impact management outcomes and impact management actions are legally binding. The preliminary infrastructure layout must be finalized to inform the final EMPr that is to be submitted with the basic assessment report (BAR) or environmental impact assessment report (EIAR), ensuring that all impact management outcomes and actions have been either pre-approved or approved in terms of <u>Part C</u>.</p> <p>This section must be submitted to the CA together with the final BAR or EIAR. The information submitted to the CA will be considered to be incomplete should a signed copy of <u>Part B: section 2</u> not be submitted. Once approved, this Section forms part of the EMPr for the development and is legally binding.</p>
C		Site specific sensitivities/ attributes	<p>If any specific environmental sensitivities/ attributes are present on the site which require site specific impact management outcomes and impact management actions, not included in the pre-approved generic EMPr, to manage impacts, these specific impact management outcomes and impact management actions must be included in this section. These specific environmental attributes must be referenced spatially and impact management outcomes and impact management actions must be provided. These specific impact management outcomes and impact management actions must be presented in the format of the pre-approved EMPr template (<u>Part B: section 1</u>)</p> <p>This section will not be required should the site contain no specific environmental sensitivities or attributes. However, if <u>Part C</u> is applicable to the site, it is required to be submitted together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The information in this section must be prepared by an EAP, and must contain his/her name and expertise including a curriculum vitae. Once approved, Part C forms part of the EMPr for the site and is legally binding.</p>

Part	Section	Heading	Content
			This section applies only to additional impact management outcomes and impact management actions that are necessary for the avoidance, management and mitigation of impacts and risks associated with the specific development or expansion and which are not already included in <u>Part B: section 1</u> .
	Appendix 1		Contains the method statements to be prepared prior to commencement of the activity. The method statements are not required to be submitted to the competent authority.

6. Completion of part B: section 1: the pre-approved generic EMPr template

The template is to be completed prior to commencement of the activity, by providing the following information for each environmental impact management action:

- For implementation
 - a 'responsible person',
 - a method for implementation,
 - a timeframe for implementation
- For monitoring
 - a responsible person
 - frequency
 - evidence of compliance.

The completed template must be signed and dated by the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as Appendix 1. Each method statement must be signed and dated on each page by the holder of the EA. This template, once signed and dated, is legally binding. The holder of the EA will remain responsible for its implementation.

7. Amendments of the impact management outcomes and impact management actions

Once the activity has commenced, a holder of an EA may make amendments to the impact management outcomes and impact management actions in the following manner:

- Amendment of the impact management outcomes: in line with the process contemplated in regulation 37 of the EIA Regulations; and
- Amendment of the impact management actions: in line with the process contemplated in regulation 36 of the EIA Regulations.

8. Documents to be submitted as part of part B: section 2 site specific information and declaration

Part B: Section 2 has three distinct sub-sections. The first and third sub-sections are in a template format. Sub-section two requires a map to be produced.

Sub-section 1 contains the project name, the applicant's name and contact details, the site information, which includes coordinates of the corridor in which the proposed overhead electricity transmission and distribution infrastructure is proposed as well as the 21-digit Surveyor General code of each cadastral land parcel and, where available, the farm name.

Sub-section 2 is to be prepared by an EAP and must contain his/her name and expertise including a curriculum vitae. This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout using the national web based environmental screening tool, when available for compulsory use at: <https://screening.environment.gov.za/screeningtool>. The sensitivity map shall identify the nature of each sensitive feature e.g. raptor nest, threatened plant species, archaeological site, etc. Sensitivity maps must identify features both within the planned working area and any known sensitive features in the surrounding landscape within 50m from the development footprint. The overhead transmission and distribution profile must be illustrated at an appropriate resolution to enable fine scale interrogation. It is recommended that <20 km of overhead transmission and distribution length is illustrated per page in A3 landscape format. Where considered appropriate, photographs of sensitive features in the context of tower positions must be used.

Sub-section 3 is the declaration that the applicant/proponent or holder of the EA in the case of a change of ownership must complete, which confirms that the applicant/EA holder will comply with the pre-approved generic EMPr template in Section 1 and understands that the impact management outcomes and actions are legally binding.

(a) Amendments to Part B: Section 2 – site specific information and declaration

Should the EA be transferred, Part B: Section 2 must be completed by the new applicant/proponent and submitted with the application for an amendment of the EA in terms of Regulations 29 or 31 of the EIA Regulations, whichever applies. The information submitted as part of such an application for an amendment to an EA will be considered to be incomplete should a signed copy of Part B: Section 2 not be submitted. Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.

PART A – GENERAL INFORMATION

1. DEFINITIONS

In this EMPr any word or expression to which a meaning has been assigned in the NEMA or EIA Regulations has that meaning, and unless the context requires otherwise –

“clearing” means the clearing and removal of vegetation, whether partially or in whole, including trees and shrubs, as specified;

“construction camp” is the area designated for key construction infrastructure and services, including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management;

“contractor” - The Contractor has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract, are in line with the Environmental Management Programme and that Method Statements are implemented as described.

“hazardous substance” is a substance governed by the Hazardous Substances Act, 1973 (Act No. 15 of 1973) as well as the Hazardous Chemical and Substances Regulations, 1995;

“method statement” means a written submission by the Contractor to the Project Manager in response to this EMPr or a request by the Project Manager and ECO. The method statement must set out the equipment, materials, labour and method(s) the Contractor proposes using to carry out an activity identified by the Project Manager when requesting the Method Statement. This must be done in such detail that the Project Manager and ECO is able to assess whether the Contractor's proposal is in accordance with this specification and/or will produce results in accordance with this specification;

The method statement must cover applicable details with regard to:

- (i) Construction procedures;
- (ii) Plant, materials and equipment to be used;
- (iii) Transporting the equipment to and from site;
- (iv) How the plant/ material/ equipment will be moved while on site;
- (v) How and where the plant/ material/ equipment will be stored;
- (vi) The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- (vii) Timing and location of activities;
- (viii) Compliance/ non-compliance; and
- (ix) Any other information deemed necessary by the Project Manager.

“slope” means the inclination of a surface expressed as one unit of rise or fall for so many horizontal units;

“solid waste” means all solid waste, including construction debris, hazardous waste, excess cement/ concrete, wrapping materials, timber, cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers);

“spoil” means excavated material which is unsuitable for use as material in the construction works or is material which is surplus to the requirements of the construction works;

“topsoil” means a varying depth (up to 300 mm) of the soil profile irrespective of the fertility, appearance, structure, agricultural potential, fertility and composition of the soil; and

“works” means the works to be executed in terms of the Contract

2. ACRONYMS and ABBREVIATIONS

CA	Competent Authority
cEO	Contractors Environmental Officer
dEO	Developer Environmental Officer
DPM	Developer Project Manager
DSS	Developer Site Supervisor
EAR	Environmental Audit Report
ECA	Environmental Conservation Act No. 73 of 1989
ECO	Environmental Control Officer
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
ERAP	Emergency Response Action Plan
EMPr	Environmental Management Programme Report
EAP	Environmental Assessment Practitioner
FPA	Fire Protection Agency
HCS	Hazardous chemical Substance
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act ,2004 (Act No. 10 of 2004)
NEMWA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
MSDS	Material Safety Data Sheet
RI&AP's	Registered interested and affected parties

3. ROLES AND RESPONSIBILITIES FOR ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr) IMPLEMENTATION

The effective implementation of this generic EMPr is dependent on established and clear roles, responsibilities and reporting lines within an institutional framework. This section of the EMPr gives guidance to the various environmental roles and reporting lines, however, project specific requirements will ultimately determine the need for the appointment of specific person(s) to undertake specific roles and or responsibilities. As such, it must be noted that in the event that no specific person, for example, an environmental control officer (ECO) is appointed, the holder of the EA remains responsible for ensuring that the duties indicated in this document for action by the ECO are undertaken.

Table 1: Guide to roles and responsibilities for implementation of an EMPr

Responsible Person (s)	Role and Responsibilities
Developer's Project Manager (DPM)	<p><u>Role</u> The Project Developer is accountable for ensuring compliance with the EMPr and any conditions of approval from the competent authority (CA). Where required, an environmental control officer (ECO) must be contracted by the Project Developer to objectively monitor the implementation of the EMPr according to relevant environmental legislation, and the conditions of the environmental authorisation (EA). The Project Developer is further responsible for providing and giving mandate to enable the ECO to perform responsibilities, and he must ensure that the ECO is integrated as part of the project team while remaining independent.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> - Be fully conversant with the conditions of the EA; - Ensure that all stipulations within the EMPr are communicated and adhered to by the Developer and its Contractor(s); - Issuing of site instructions to the Contractor for corrective actions required; - Monitor the implementation of the EMPr throughout the project by means of site inspections and meetings. Overall management of the project and EMPr implementation; and - Ensure that periodic environmental performance audits are undertaken on the project implementation.
Developer Site Supervisor (DSS)	<p><u>Role</u> The DSS reports directly to the DPM, oversees site works, liaises with the contractor(s) and the ECO. The DSS</p>

Responsible Person (s)	Role and Responsibilities
	<p>is responsible for the day to day implementation of the EMPr and for ensuring the compliance of all contractors with the conditions and requirements stipulated in the EMPr.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> - Ensure that all contractors identify a contractor's Environmental Officer (cEO); - Must be fully conversant with the conditions of the EA. Oversees site works, liaison with Contractor, DPM and ECO; - Must ensure that all landowners have the relevant contact details of the site staff, ECO and cEO; - Issuing of site instructions to the Contractor for corrective actions required; - Will issue all non-compliances to contractors; and - Ratify the Monthly Environmental Report.
Environmental Control Officer (ECO)	<p><u>Role</u></p> <p>The ECO should have appropriate training and experience in the implementation of environmental management specifications. The primary role of the ECO is to act as an independent quality controller and monitoring agent regarding all environmental concerns and associated environmental impacts. In this respect, the ECO is to conduct periodic site inspections, attend regular site meetings, pre-empt problems and suggest mitigation and be available to advise on incidental issues that arise. The ECO is also required to conduct compliance audits, verifying the monitoring reports submitted by the cEO. The ECO provides feedback to the DSS and Project Manager regarding all environmental matters. The Contractor, cEO and dEO are answerable to the Environmental Control Officer for non-compliance with the Performance Specifications as set out in the EA and EMPr.</p> <p>The ECO provides feedback to the DSS and Project Manager, who in turn reports back to the Contractor and potential and Registered Interested & Affected Parties' (RI&AP's), as required. Issues of non-compliance raised by the ECO must be taken up by the Project Manager, and resolved with the Contractor as per the conditions of his contract. Decisions regarding environmental procedures, specifications and requirements which have a cost implication (i.e. those that are deemed to be a variation, not allowed for in the Performance Specification) must be endorsed by the Project Manager. The ECO must also, as specified by the EA, report to the relevant CA as and when required.</p> <p><u>Responsibilities</u></p>

Responsible Person (s)	Role and Responsibilities
	<p>The responsibilities of the ECO will include the following:</p> <ul style="list-style-type: none"> - Be aware of the findings and conclusions of all EA related to the development; - Be familiar with the recommendations and mitigation measures of this EMPr; - Be conversant with relevant environmental legislation, policies and procedures, and ensure compliance with them; - Undertake regular and comprehensive site inspections / audits of the construction site according to the generic EMPr and applicable licenses in order to monitor compliance as required; - Educate the construction team about the management measures contained in the EMPr and environmental licenses; - Compilation and administration of an environmental monitoring plan to ensure that the environmental management measures are implemented and are effective; - Monitoring the performance of the Contractors and ensuring compliance with the EMPr and associated Method Statements; - In consultation with the Developer Site Supervisor order the removal of person(s) and/or equipment which are in contravention of the specifications of the EMPr and/or environmental licenses; - Liaison between the DPM, Contractors, authorities and other lead stakeholders on all environmental concerns; - Compile a regular environmental audit report highlighting any non-compliance issues as well as satisfactory or exceptional compliance with the EMPr; - Validating the regular site inspection reports, which are to be prepared by the contractor Environmental Officer (cEO); - Checking the cEO's record of environmental incidents (spills, impacts, legal transgressions etc) as well as corrective and preventive actions taken; - Checking the cEO's public complaints register in which all complaints are recorded, as well as action taken; - Assisting in the resolution of conflicts; - Facilitate training for all personnel on the site – this may range from carrying out the training, to reviewing the training programmes of the Contractor; - In case of non-compliances, the ECO must first communicate this to the Senior Site Supervisor, who has the power to ensure this matter is addressed. Should no action or insufficient action be taken, the ECO may report this matter to the authorities as non-compliance; - Maintenance, update and review of the EMPr; - Communication of all modifications to the EMPr to the relevant stakeholders.
developer Environmental Officer	<u>Role</u>

Responsible Person (s)	Role and Responsibilities
(dEO)	<p>The dEOs will report to the Project Manager and are responsible for implementation of the EMPr, environmental monitoring and reporting, providing environmental input to the Project Manager and Contractor's Manager, liaising with contractors and the landowners as well as a range of environmental coordination responsibilities.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> - Be fully conversant with the EMPr; - Be familiar with the recommendations and mitigation measures of this EMPr, and implement these measures; - Ensure that all stipulations within the EMPr are communicated and adhered to by the Employees, Contractor(s) ; - Confine the development site to the demarcated area; - Conduct environmental internal audits with regards to EMPr and authorisation compliance (on cEO); - Assist the contractors in addressing environmental challenges on site; - Assist in incident management: - Reporting environmental incidents to developer and ensuring that corrective action is taken, and lessons learnt shared; - Assist the contractor in investigating environmental incidents and compile investigation reports; - Follow-up on pre-warnings, defects, non-conformance reports; - Measure and communicate environmental performance to the Contractor; - Conduct environmental awareness training on site together with ECO and cEO; - Ensure that the necessary legal permits and / or licenses are in place and up to date; - Acting as Developer's Environmental Representative on site and work together with the ECO and contractor;
Contractor	<p><u>Role</u></p> <p>The Contractor appoints the cEO and has overall responsibility for ensuring that all work, activities, and actions linked to the delivery of the contract are in line with the EMPr and that Method Statements are implemented as described. External contractors must ensure compliance with this EMPr while performing the onsite activities as per their contract with the Project Developer. The contractors are required, where</p>

Responsible Person (s)	Role and Responsibilities
	<p>specified, to provide Method Statements setting out in detail how the impact management actions contained in the EMPr will be implemented during the development or expansion for overhead electricity transmission and distribution infrastructure activities.</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> - project delivery and quality control for the development services as per appointment; - employ a suitably qualified person to monitor and report to the Project Developer's appointed person on the daily activities on-site during the construction period; - ensure that safe, environmentally acceptable working methods and practices are implemented and that equipment is properly operated and maintained, to facilitate proper access and enable any operation to be carried out safely; - attend on site meeting(s) prior to the commencement of activities to confirm the procedure and designated activity zones; - ensure that contractors' staff repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in EMPr, to the satisfaction of the ECO.
contractor Environmental Officer (cEO)	<p><u>Role</u></p> <p>Each Contractor affected by the EMPr should appoint a cEO, who is responsible for the on-site implementation of the EMPr (or relevant sections of the EMPr). The Contractor's representative can be the site agent; site engineer; a dedicated environmental officer; or an independent consultant. The Contractor must ensure that the Contractor's Representative is suitably qualified to perform the necessary tasks and is appointed at a level such that she/he can interact effectively with other site Contractors, labourers, the Environmental Control Officer and the public. As a minimum the cEO shall meet the following criteria:</p> <p><u>Responsibilities</u></p> <ul style="list-style-type: none"> - Be on site throughout the duration of the project and be dedicated to the project; - Ensure all their staff are aware of the environmental requirements, conditions and constraints with respect to all of their activities on site; - Implementing the environmental conditions, guidelines and requirements as stipulated within the EA,

Responsible Person (s)	Role and Responsibilities
	<p>EMPr and Method Statements;</p> <ul style="list-style-type: none"> - Attend the Environmental Site Meeting; - Undertaking corrective actions where non-compliances are registered within the stipulated timeframes; - Report back formally on the completion of corrective actions; - Assist the ECO in maintaining all the site documentation; - Prepare the site inspection reports and corrective action reports for submission to the ECO; - Assist the ECO with the preparing of the monthly report; and - Where more than one Contractor is undertaking work on site, each company appointed as a Contractor will appoint a cEO representing that company.

4. ENVIRONMENTAL DOCUMENTATION REPORTING AND COMPLIANCE

To ensure accountable and demonstrated implementation of the EMPr, a number of reporting systems, documentation controls and compliance mechanisms must be in place for all overhead electricity transmission and distribution infrastructure projects as a minimum requirement.

4.1 Document control/Filing system

The holder of the EA is solely responsible for the upkeep and management of the EMPr file. At a minimum, all documentation detailed below will be stored in the EMPr file. A hard copy of all documentation shall be filed, while an electronic copy may be kept where relevant. A duplicate file will be maintained in the office of the DSS (where applicable). This duplicate file must remain current and up-to-date. The filing system must be updated and relevant documents added as required. The EMPr file must be made available at all times on request by the CA or other relevant authorities. The EMPr file will form part of any environmental audits undertaken as prescribed in the EIA Regulations.

4.2 Documentation to be available

At the outset of the project the following preliminary list of documents shall be placed in the filing system and be accessible at all times:

- Full copy of the signed EA from the CA in terms of NEMA, granting approval for the development or expansion;
- Copy of the generic and site specific EMPr as well as any amendments thereof;
- Copy of declaration of implementing generic EMPr and subsequent approval of site specific EMPr and amendments thereof;
- All method statements;
- Completed environmental checklists;
- Minutes and attendance register of environmental site meetings;
- An up-to-date environmental incident log;
- A copy of all instructions or directives issued;
- A copy of all corrective actions signed off. The corrective actions must be filed in such a way that a clear reference is made to the non-compliance record;
- Complaints register.

4.3 Weekly Environmental Checklist

The ECOs are required to complete a Weekly Environmental Checklist, the format of which is to be agreed prior to commencement of the activity. The ECOs are required to sign and date the checklist, retain a copy in the EMPr file and submit a copy of the completed checklist to the DSS on a weekly basis.

The checklists will form the basis for the Monthly Environmental Reports. Copies of all completed checklists will be attached as Annexures to the Environmental Audit Report as required in terms of the EIA Regulations.

4.4 Environmental site meetings

Minutes of the environmental site meetings shall be kept. The minutes must include an attendance register and will be attached to the Monthly Report that is distributed to attendees. Each set of minutes must clearly record "Matters for Attention" that will be reviewed at the next meeting.

4.5 Required Method Statements

The method statement will be done in such detail that the ECOs are enabled to assess whether the contractor's proposal is in accordance with the EMPr.

The method statement must cover applicable details with regard to:

- development procedures;
- materials and equipment to be used;
- getting the equipment to and from site;
- how the equipment/ material will be moved while on site;
- how and where material will be stored;
- the containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur;
- timing and location of activities;
- compliance/ non-compliance with the EMPr; and
- any other information deemed necessary by the ECOs.

Unless indicated otherwise by the Project Manager, the Contractor shall provide the following method statements to the Project Manager no less than 14 days prior to the commencement date of the activity:

- Site establishment – Camps, Lay-down or storage areas, satellite camps, infrastructure;
- Batch plants;
- Workshop or plant servicing;
- Handling, transport and storage of Hazardous Chemical Substance's;
- Vegetation management – Protected, clearing, aliens, felling;
- Access management – Roads, gates, crossings etc.;
- Fire plan;
- Waste management – transport, storage, segregation, classification, disposal (all waste streams);
- Social interaction – complaints management, compensation claims, access to properties etc.;
- Water – use (source, abstraction and disposal), access and all related information, crossings and mitigation;
- Emergency preparedness – Spills, training, other environmental emergencies;
- Dust and noise management methodologies;
- Fauna interaction and risk management – only if the risk was identified – wildlife interaction especially on game farms; and
- Heritage and palaeontology management.

The ECOs shall monitor and ensure that the contractors perform in accordance with these method statements. Completed and agreed method statements between the holder of the EA and the contractor shall be captured in Appendix 1.

4.6 Environmental Incident Log (Diary)

The ECOs are required to maintain an up-to-date and current Environmental Incident Log (environmental diary). The Environmental Incident Log is a means to record all environmental incidents and/or all non-compliance notice would not be issued. An environmental incident is defined as:

- Any deviation from the listed impact management actions (listed in this EMPr) that may be addressed immediately by the ECOs. (For example a contractor's staff member littering or a drip tray that has not been emptied);
- Any environmental impact resulting from an action or activity by a contractor in contravention of the environmental stipulations and guidelines listed in the EMPr which as a single event would have a minor impact but which if cumulative and continuous would have a significant effect (for example no toilet paper available in the ablutions for an afternoon); and
- General environmental information such as road kills or injured wildlife.

The ECOs are to record all environmental incidents in the Environmental Incident Log. All incidents regardless of severity must be reported to the Developer. The Log is to be kept in the EMPr file and at a minimum the following will be recorded for each environmental incident:

- The date and time of the incident;
- Description of the incident;
- The name of the Contractor responsible;
- The incident must be listed as significant or minor;
- If the incident is listed as significant, a non-compliance notice must be issued, and recorded in the log;
- Remedial or corrective action taken to mitigate the incident; and
- Record of repeat minor offences by the same contractor or staff member.

The Environmental Incident Log will be captured in the EAR.

4.7 Non-compliance

A non-compliance notice will be issued to the responsible contractor by the ECOs via the DSS or Project Manager. The non-compliance notice will be issued in writing; a copy filed in the EMPr file and will at a minimum include the following:

- Time and date of the non-compliance;
- Name of the contractor responsible;
- Nature and description of the non-compliance;
- Recommended / required corrective action; and
- Date by which the corrective action to be completed.
- The contractors shall act immediately when a notice of non-compliance is received and correct whatever is the cause for the issuing of the notice. Complaints

received regarding activities on the development site pertaining to the environment shall be recorded in a dedicated register and the response noted with the date and action taken. The ECO should be made aware of any complaints. Any non-compliance with the agreed procedures of the EMPr is a transgression of the various statutes and laws that define the manner by which the environment is managed. Failure to redress the cause shall be reported to the relevant CA for them to deal with the transgression, as it deems fit. The contractor is deemed not to have complied with the EMPr if, inter alia, there is a deviation from the environmental conditions, impact management outcomes and impact management actions, as approved in generic and site specific EMPr as relevant as set out in the EMPr, which deviation has, or may cause, an environmental impact.

4.8 Corrective action records

For each non-compliance notice issued, a documented corrective action must be recorded. On receiving a non-compliance notice from the DSS, the contractor's cEO will ensure that the corrective actions required take place within the stipulated timeframe. On completion of the corrective action the cEO is to issue a Corrective Action Report in writing to the ECOs. If satisfied that the corrective action has been completed, the ECOs are to sign-off on the Corrective Action Report, and attach the report to the non-compliance notice in the EMPr file. A corrective action is considered complete once the report has signed off by the ECOs.

4.9 Photographic record

A digital photographic record will be kept. The photographic record will be used to show before, during and post rehabilitation evidence of the project as well used in cases of damages claims if they arise. Each image must be dated and a brief description note attached.

The Contractor shall:

1. Allow the ECOs access to take photographs of all areas, activities and actions.

The ECOs shall keep an electronic database of photographic records which will include:

1. Pictures of all areas designated as work areas, camp areas, development sites and storage areas taken before these areas are set up;
2. All bunding and fencing;
3. Road conditions and road verges;
4. Condition of all farm fences;
5. Topsoil storage areas;
6. All areas to be cordoned off during construction;
7. Waste management sites;
8. Ablution facilities (inside and out);
9. Any non-conformances deemed to be "significant";
10. All completed corrective actions for non-compliances;
11. All required signage;
12. Photographic recordings of incidents;
13. All areas before, during and post rehabilitation; and
14. Include relevant photographs in the Final Environmental Audit Report.

4.10 Complaints register

The ECOs shall keep a current and up-to-date complaints register. The complaints register is to be a record of all complaints received from communities, stakeholders and individuals. The Complaints Record shall:

1. Record the name and contact details of the complainant;
2. Record the time and date of the complaint;
3. Contain a detailed description of the complaint;
4. Where relevant and appropriate, contain photographic evidence of the complaint or damage (ECOs to take relevant photographs); and
5. Contain a copy of the ECOs written response to each complaint received and keep a record of any further correspondence with the complainant. The ECO's written response will include a description of any corrective action to be taken and must be signed by the Contractor, ECO and affected party. Where a damage claim is issued by the complainant, the ECOs shall respond as described in **(section 4.11)** below.

4.11 Claims for damages

In the event that a Claim for Damages is submitted by a community, landowner or individual, the ECOs shall:

1. Record the full detail of the complaint as described in **(section 4.10)** above;
2. The DPM will evaluate the claim and associated damage and submit the evaluation to the Senior Site Representative for approval;
3. Following consideration by the DPM, the claim is to be resolved and settled immediately, or the reason for not accepting the claim communicated in writing to the claimant. Should the claimant not accept this, the ECO shall, in writing report the incident to the Developer's negotiator and legal department; and
4. A formal record of the response by the ECOs to the claimant as well as the rectification of the method of making payments not amount will be recorded in the EMPr file.

4.12 Interactions with affected parties

Open, transparent and good relations with affected landowners, communities and regional staff are an essential aspect to the successful management and mitigation of environmental impacts.

The ECOs shall:

1. Ensure that all queries, complaints and claims are dealt within an agreed timeframe;
2. Ensure that any or all agreements are documented, signed by all parties and a record of the agreement kept in the EMPr file;
3. Ensure that a complaints telephone numbers are made available to all landowners and affected parties; and
4. Ensure that contact with affected parties is courteous at all times;

4.13 Environmental audits

Internal environmental audits of the activity and implementation of the EMPr must be undertaken. The findings and outcomes must be included in the EMPr file and be submitted to the CA at intervals as indicated in the EA.

An Environmental Audit Report must be prepared monthly. The report will be tabled as the key point on the agenda of the Environmental Site Meeting. The Report is submitted for acceptance at the meeting and the final report will be circulated to the Project Manager and filed in the EMPr file. At a frequency determined by the EA, the ECOs shall submit the monthly reports to the CA. At a minimum the monthly report is to cover the following:

- Weekly Environmental Checklists;
- Deviations and non-compliances with the checklists;
- Non-compliances issued;
- Completed and reported corrective actions;
- Environmental Monitoring;
- General environmental findings and actions; and
- Minutes of the Bi-monthly Environmental Site Meetings.

4.14 Final environmental audits

On final completion of the rehabilitation and/or requirements of the EA a final EAR is to be prepared and submitted to the CA. The EAR must comply with Appendix 7 of the EIA Regulations.

PART B: SECTION 1: Pre-approved generic EMPr template

5. IMPACT MANAGEMENT OUTCOMES AND IMPACT MANAGEMENT ACTIONS

This section provides a pre-approved generic EMPr template with aspects that are common to the development of overhead electricity transmission and distribution infrastructure. There is a list of aspects identified for the development or expansion of overhead electricity transmission and distribution infrastructure, and for each aspect a set of prescribed impact management outcomes and associated impact management actions have been identified. Holders of EAs are responsible to ensure the implementation of these outcomes and actions for all projects as a minimum requirement, in order to mitigate the impact of such aspects identified for the development or expansion of overhead electricity transmission and distribution infrastructure.

The template provided below is to be completed by providing the information under each heading for each environmental impact management action.

The completed template must be signed and dated on each page by both the contractor and the holder of the EA prior to commencement of the activity. The method statements prepared and agreed to by the holder of the EA must be appended to the template as Appendix 1. Each method statement must also be duly signed and dated on each page by the contractor and the holder of the EA. This template, once signed and dated, is legally binding. The holder of the EA will remain responsible for its implementation.

5.1 Environmental awareness training

Impact management outcome: All onsite staff are aware and understands the individual responsibilities in terms of this EMPr.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - All staff must receive environmental awareness training prior to commencement of the activities; - The Contractor must allow for sufficient sessions to train all personnel with no more than 20 personnel attending each course; - Refresher environmental awareness training is available as and when required; - All staff are aware of the conditions and controls linked to the EA and within the EMPr and made aware of their individual roles and responsibilities in achieving compliance with the EA and EMPr; - The Contractor must erect and maintain information posters at key locations on site, and the posters must include the following information as a minimum: <ul style="list-style-type: none"> a) Safety notifications; and b) No littering. - Environmental awareness training must include as a minimum the following: <ul style="list-style-type: none"> a) Description of significant environmental impacts, actual or potential, related to their work activities; b) Mitigation measures to be implemented when carrying out specific activities; c) Emergency preparedness and response 	Developer	Training and Induction of Employees	Throughout development phases	ECO and Safety Officer	Throughout development phases. Monthly checks	Attendance Register

<p>procedures;</p> <p>d) Emergency procedures;</p> <p>e) Procedures to be followed when working near or within sensitive areas;</p> <p>f) Wastewater management procedures;</p> <p>g) Water usage and conservation;</p> <p>h) Solid waste management procedures;</p> <p>i) Sanitation procedures;</p> <p>j) Fire prevention; and</p> <p>k) Disease prevention.</p> <p>– A record of all environmental awareness training courses undertaken as part of the EMP must be available;</p> <p>– Educate workers on the dangers of open and/or unattended fires;</p> <p>– A staff attendance register of all staff to have received environmental awareness training must be available.</p> <p>– Course material must be available and presented in appropriate languages that all staff can understand.</p>						
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5.2 Site Establishment development



Impact management outcome: Impacts on the environment are minimised during site establishment and the development footprint are kept to demarcated development area.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> – A method statement must be provided by the contractor prior to any onsite activity that includes the layout of the construction camp in the form of a plan showing the location of key infrastructure and services (where applicable), including but not limited to offices, overnight vehicle parking areas, stores, the workshop, stockpile and lay down areas, hazardous materials storage areas (including fuels), the batching plant (if one is located at the construction camp), designated access routes, equipment cleaning areas and the placement of staff accommodation, cooking and ablution facilities, waste and wastewater management; – Location of camps must be within approved area to ensure that the site does not impact on sensitive areas identified in the environmental assessment or site walk through; – Sites must be located where possible on previously disturbed areas; – The camp must be fenced in accordance with Section 5.5: Fencing and gate installation; and – The use of existing accommodation for contractor staff, where possible, is encouraged. 	Developer	Method Statements	Site Establishment	ECO	Site Establishment	Weekly checks

5.3 Access restricted areas

Impact management outcome: Access to restricted areas prevented.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> – Identification of access restricted areas is to be informed by the environmental assessment, site walk through and any additional areas identified during development; – Erect, demarcate and maintain a temporary barrier with clear signage around the perimeter of any access restricted area, colour coding could be used if appropriate; and – Unauthorised access and development related activity inside access restricted areas is prohibited. 	Developer	Method Statements	Throughout development phases	ECO and Safety Officer	Throughout development phases. Monthly checks	Register

5.4 Access roads

Impact management outcome: Minimise impact to the environment through the planned and restricted movement of vehicles on site.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> – Access to the servitude and tower positions must be negotiated with the relevant landowner and must fall within the assessed and authorised area; – An access agreement must be formalised and signed by the DPM, Contractor and landowner before commencing with the activities; 	Developer	Method Statements	Throughout development phases	ECO and Safety Officer	Throughout development phases. Monthly	Register

<ul style="list-style-type: none"> - The access roads to tower positions must be signposted after access has been negotiated and before the commencement of the activities; - All private roads used for access to the servitude must be maintained and upon completion of the works, be left in at least the original condition - All contractors must be made aware of all these access routes. - Any access route deviation from that in the written agreement must be closed and re-vegetated immediately, at the contractor's expense; - Maximum use of both existing servitudes and existing roads must be made to minimize further disturbance through the development of new roads; - In circumstances where private roads must be used, the condition of the said roads must be recorded in accordance with section 4.9: photographic record; prior to use and the condition thereof agreed by the landowner, the DPM, and the contractor; - Access roads in flattish areas must follow fence lines and tree belts to avoid fragmentation of vegetated areas or croplands - Access roads must only be developed on pre-planned and approved roads. 					checks	
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5.5 Fencing and Gate installation

Impact management outcome: Minimise impact to the environment and ensure safe and controlled access to the site through the erection of fencing and gates where required.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Use existing gates provided to gain access to all parts of the area authorised for development, where possible; - Existing and new gates to be recorded and documented in accordance with section 4.9: photographic record; - All gates must be fitted with locks and be kept locked at all times during the development phase, unless otherwise agreed with the landowner; - At points where the line crosses a fence in which there is no suitable gate within the extent of the line servitude, on the instruction of the DPM, a gate must be installed at the approval of the landowner; - Care must be taken that the gates must be so erected that there is a gap of no more than 100 mm between the bottom of the gate and the ground; - Where gates are installed in jackal proof fencing, a suitable reinforced concrete sill must be provided beneath the gate; - Original tension must be maintained in the fence wires; - All gates installed in electrified fencing must be re-electrified; - All demarcation fencing and barriers must be maintained in good working order for the duration of overhead transmission and distribution electricity infrastructure development activities; - Fencing must be erected around the camp, batching plants, hazardous storage areas, and all designated access 	Developer	Method Statements	Throughout development phases	ECO and Safety Officer	Throughout development phases. Monthly checks	Register

<p>restricted areas, where appropriate and would not cause harm to the sensitive flora;</p> <ul style="list-style-type: none"> - Any temporary fencing to restrict the movement of life-stock must only be erected with the permission of the land owner. - All fencing must be developed of high quality material bearing the SABS mark; - The use of razor wire as fencing must be avoided; - Fenced areas with gate access must remain locked after hours, during weekends and on holidays if staff is away from site. Site security will be required at all times; - On completion of the development phase all temporary fences are to be removed; - The contractor must ensure that all fence uprights are appropriately removed, ensuring that no uprights are cut at ground level but rather removed completely. 						
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5.6 Water Supply Management

<p>Impact management outcome: Undertake responsible water usage.</p>						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - All abstraction points or bore holes must be registered with the DWS and suitable water meters installed to ensure that the abstracted volumes are measured on a daily basis; - The Contractor must ensure the following: <ul style="list-style-type: none"> a. The vehicle abstracting water from a river does not enter 	<p>Developer</p>	<p>Method Statements</p>	<p>Throughout development phases</p>	<p>ECO</p>	<p>Throughout development phases.</p>	<p>Register</p>

<p>or cross it and does not operate from within the river;</p> <p>b. No damage occurs to the river bed or banks and that the abstraction of water does not entail stream diversion activities; and</p> <p>c. All reasonable measures to limit pollution or sedimentation of the downstream watercourse are implemented.</p> <p>– Ensure water conservation is being practiced by:</p> <p>a. Minimising water use during cleaning of equipment;</p> <p>b. Undertaking regular audits of water systems; and</p> <p>c. Including a discussion on water usage and conservation during environmental awareness training.</p> <p>d. The use of grey water is encouraged.</p>					<p>Monthly checks</p>	
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5.7 Storm and waste water management

Impact management outcome: Impacts to the environment caused by storm water and wastewater discharges during construction are avoided.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> – Runoff from the cement/ concrete batching areas must be strictly controlled, and contaminated water must be collected, stored and either treated or disposed of off-site, at a location approved by the project manager; – All spillage of oil onto concrete surfaces must be controlled by the use of an approved absorbent material and the used absorbent material disposed of at an appropriate waste disposal facility; – Natural storm water runoff not contaminated during the 	<p>Developer</p>	<p>Method Statements</p>	<p>Throughout development phases</p>	<p>ECO</p>	<p>Throughout development phases. Monthly checks</p>	<p>Register</p>

<p>development and clean water can be discharged directly to watercourses and water bodies, subject to the Project Manager's approval and support by the ECO;</p> <ul style="list-style-type: none"> – Water that has been contaminated with suspended solids, such as soils and silt, may be released into watercourses or water bodies only once all suspended solids have been removed from the water by settling out these solids in settlement ponds. The release of settled water back into the environment must be subject to the Project Manager's approval and support by the ECO. 						
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5.8 Solid and hazardous waste management

Impact management outcome: Waste is appropriately stored, handled and safely disposed of at a recognised waste facility.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> – All measures regarding waste management must be undertaken using an integrated waste management approach; – Sufficient, covered waste collection bins (scavenger and weatherproof) must be provided; – A suitably positioned and clearly demarcated waste collection site must be identified and provided; – The waste collection site must be maintained in a clean and orderly manner; 	Developer	Method Statements	Throughout development phases	ECO	Throughout development phases. Weekly checks	Register

<ul style="list-style-type: none"> - Waste must be segregated into separate bins and clearly marked for each waste type for recycling and safe disposal; - Staff must be trained in waste segregation; - Bins must be emptied regularly; - General waste produced onsite must be disposed of at registered waste disposal sites/ recycling company; - Hazardous waste must be disposed of at a registered waste disposal site; - Certificates of safe disposal for general, hazardous and recycled waste must be maintained. 						
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5.9 Protection of watercourses and estuaries

Impact management outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - All watercourses must be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils, fuels, chemicals, aggregate tailings, wash and contaminated water or organic material resulting from the Contractor's activities; - In the event of a spill, prompt action must be taken to clear the polluted or affected areas; - Where possible, no development equipment must traverse any seasonal or permanent wetland - No return flow into the estuaries must be allowed and no disturbance of the Estuarine Functional Zone should occur; 	Developer	Method Statements	Throughout development phases	ECO	Throughout development phases. Weekly checks	Register

<ul style="list-style-type: none"> - Development of permanent watercourse or estuary crossing must only be undertaken where no alternative access to tower position is available; - There must not be any impact on the long term morphological dynamics of watercourses or estuaries; - Existing crossing points must be favoured over the creation of new crossings (including temporary access) - When working in or near any watercourse or estuary, the following environmental controls and consideration must be taken: <ul style="list-style-type: none"> a) Water levels during the period of construction; No altering of the bed, banks, course or characteristics of a watercourse b) During the execution of the works, appropriate measures to prevent pollution and contamination of the riparian environment must be implemented e.g. including ensuring that construction equipment is well maintained; c) Where earthwork is being undertaken in close proximity to any watercourse, slopes must be stabilised using suitable materials, i.e. sandbags or geotextile fabric, to prevent sand and rock from entering the channel; and d) Appropriate rehabilitation and re-vegetation measures for the watercourse banks must be implemented timeously. In this regard, the banks should be appropriately and incrementally stabilised as soon as development allows. 						
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5.10 Vegetation clearing

Impact management outcome: Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<p>General:</p> <ul style="list-style-type: none"> - Indigenous vegetation which does not interfere with the development must be left undisturbed; - Protected or endangered species may occur on or near the development site. Special care should be taken not to damage such species; - Search, rescue and replanting of all protected and endangered species likely to be damaged during project development must be identified by the relevant specialist and completed prior to any development or clearing; - Permits for removal must be obtained from the Department of Agriculture, Forestry and Fisheries prior to the cutting or clearing of the affected species, and they must be filed; - The Environmental Audit Report must confirm that all identified species have been rescued and replanted and that the location of replanting is compliant with conditions of approvals; - Trees felled due to construction must be documented and form part of the Environmental Audit Report; - Rivers and watercourses must be kept clear of felled trees, vegetation cuttings and debris; - Only a registered pest control operator may apply herbicides on a commercial basis and commercial application must be carried out under the supervision of a registered pest control operator, supervision of a registered 	Developer	Method Statements	Throughout development phases	ECO	Throughout development phases. Weekly checks	Register

<p>pest control operator or is appropriately trained;</p> <ul style="list-style-type: none"> - A daily register must be kept of all relevant details of herbicide usage; - No herbicides must be used in estuaries; - All protected species and sensitive vegetation not removed must be clearly marked and such areas fenced off in accordance to Section 5.3: Access restricted areas. <p>Servitude:</p> <ul style="list-style-type: none"> - Vegetation that does not grow high enough to cause interference with overhead transmission and distribution infrastructures, or cause a fire hazard to any plantation, must not be cut or trimmed unless it is growing in the road access area, and then only at the discretion of the Project Manager; - Where clearing for access purposes is essential, the maximum width to be cleared within the servitude must be in accordance to distance as agreed between the landowner and the EA holder - Alien invasive vegetation must be removed according to a plan (in line with relevant municipal and provincial procedures, guidelines and recommendations) and disposed of at a recognised waste disposal facility; - Vegetation must be trimmed where it is likely to intrude on the minimum vegetation clearance distance (MVCD) or will intrude on this distance before the next scheduled clearance. MVCD is determined from SANS 10280; - Debris resulting from clearing and pruning must be disposed of at a recognised waste disposal facility, unless the landowners wish to retain the cut vegetation; - In the case of the development of new overhead transmission and distribution infrastructures, a one metre "trace-line" must be cut through the vegetation for stringing 						
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purposes only and no vehicle access must be cleared along the "trace-line". Alternative methods of stringing which limit impact to the environment must always be considered.						
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5.11 Protection of fauna

Impact management outcome: Minimise disturbance to fauna.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present; - The breeding sites of raptors and other wild birds species must be taken into consideration during the planning of the development programme; - Breeding sites must be kept intact and disturbance to breeding birds must be avoided. Special care must be taken where nestlings or fledgelings are present; - Nesting sites on existing parallel lines must be documented; - Special recommendations of the avian specialist must be adhered to at all times to prevent unnecessary disturbance of birds; - Bird guards and diverters must be installed on the new line as per the recommendations of the specialist; - No poaching must be tolerated under any circumstances. All animal dens in close proximity to the works areas must be marked as Access restricted areas; - No deliberate or intentional killing of fauna is allowed; 	Developer	Method Statements	Throughout development phases	ECO	Throughout development phases. Weekly checks	Register

<ul style="list-style-type: none"> - In areas where snakes are abundant, snake deterrents to be deployed on the pylons to prevent snakes climbing up, being electrocuted and causing power outages; and - No Threatened or Protected species (ToPs) and/or protected fauna as listed according NEMBA (Act No. 10 of 2004) and relevant provincial ordinances may be removed and/or relocated without appropriate authorisations/permits. 						
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5.12 Protection of heritage resources

Impact management outcome: Minimise impact to heritage resources.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Identify, demarcate and prevent impact to all known sensitive heritage features on site in accordance with the No-Go procedure in Section 5.3: Access restricted areas; - Carry out general monitoring of excavations for potential fossils, artefacts and material of heritage importance; - All work must cease immediately, if any human remains and/or other archaeological, palaeontological and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/palaeontologist (or the South African Police Services), so that a systematic and professional investigation can be undertaken. Sufficient time must be allowed to remove/collect such material before development 	Developer	Method Statements	Throughout development phases	ECO	Throughout development phases. Weekly checks	Register

recommences.						
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5.13 Safety of the public

Impact management outcome: All precautions are taken to minimise the risk of injury, harm or complaints.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Identify fire hazards, demarcate and restrict public access to these areas as well as notify the local authority of any potential threats e.g. large brush stockpiles, fuels etc.; - All unattended open excavations must be adequately fenced or demarcated; - Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed towers and protective scaffolding; - Ensure structures vulnerable to high winds are secured; - Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged. 	Developer	Method Statements	Throughout development phases	ECO and Safety Officer	Throughout development phases. Weekly checks	Register

5.14 Sanitation

Impact management outcome: Clean and well maintained toilet facilities are available to all staff in an effort to minimise the risk of disease and impact to the environment.

Impact Management Actions	Implementation	Monitoring

	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Mobile chemical toilets are installed onsite if no other ablution facilities are available; - The use of ablution facilities and or mobile toilets must be used at all times and no indiscriminate use of the veld for the purposes of ablutions must be permitted under any circumstances; - Where mobile chemical toilets are required, the following must be ensured: <ul style="list-style-type: none"> a) Toilets are located no closer than 100 m to any watercourse or water body; b) Toilets are secured to the ground to prevent them from toppling due to wind or any other cause; c) No spillage occurs when the toilets are cleaned or emptied and the contents are managed in accordance with the EMP;R; d) Toilets have an external closing mechanism and are closed and secured from the outside when not in use to prevent toilet paper from being blown out; e) Toilets are emptied before long weekends and workers holidays, and must be locked after working hours; f) Toilets are serviced regularly and the ECO must inspect toilets to ensure compliance to health standards; - A copy of the waste disposal certificates must be maintained. 	Developer	Method Statements	Throughout development phases	ECO and Safety Officer	Throughout development phases. Weekly checks	Register

5.15 Prevention of disease

Impact Management outcome: All necessary precautions linked to the spread of disease are taken.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Undertake environmentally-friendly pest control in the camp area; - Ensure that the workforce is sensitised to the effects of sexually transmitted diseases, especially HIV AIDS; - The Contractor must ensure that information posters on AIDS are displayed in the Contractor Camp area; - Information and education relating to sexually transmitted diseases to be made available to both construction workers and local community, where applicable; - Free condoms must be made available to all staff on site at central points; - Medical support must be made available; - Provide access to Voluntary HIV Testing and Counselling Services. 	Developer	Method Statements	Throughout development phases	ECO and Safety Officer	Throughout development phases. Weekly checks	Register

5.16 Emergency procedures

Impact management outcome: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.						
Impact Management Actions	Implementation			Monitoring		

	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project; - The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation; - All staff must be made aware of emergency procedures as part of environmental awareness training; - The relevant local authority must be made aware of a fire as soon as it starts; - In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see Hazardous Substances section 5.17). 	Developer	Method Statements	Throughout development phases	ECO and Safety Officer	Throughout development phases. Weekly checks	Register

5.17 Hazardous substances

Impact management outcome: Safe storage, handling, use and disposal of hazardous substances.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible; - All hazardous substances must be stored in suitable 	Developer	Method Statements	Throughout development phases	ECO and Safety Officer	Throughout development	Register

<p>containers as defined in the Method Statement;</p> <ul style="list-style-type: none"> - Containers must be clearly marked to indicate contents, quantities and safety requirements; - All storage areas must be bunded. The bunded area must be of sufficient capacity to contain a spill / leak from the stored containers; - Bunded areas to be suitably lined with a SABS approved liner; - An Alphabetical Hazardous Chemical Substance (HCS) control sheet must be drawn up and kept up to date on a continuous basis; - All hazardous chemicals that will be used on site must have Material Safety Data Sheets (MSDS); - All employees working with HCS must be trained in the safe use of the substance and according to the safety data sheet; - Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective equipment must be made available; - The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers; - The tanks/ bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund. The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks/ bowsers (110% statutory requirement plus an allowance for rainfall); - The floor of the bund must be sloped, draining to an oil separator; 					<p>phases. Weekly checks</p>	
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<ul style="list-style-type: none"> - Provision must be made for refuelling at the storage area by protecting the soil with an impermeable groundcover. Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained; - All empty externally dirty drums must be stored on a drip tray or within a bunded area; - No unauthorised access into the hazardous substances storage areas must be permitted; - No smoking must be allowed within the vicinity of the hazardous storage areas; - Adequate fire-fighting equipment must be made available at all hazardous storage areas; - Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground protection such as drip trays must be used; - An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be available at all times; - The responsible operator must have the required training to make use of the spill kit in emergency situations; - An appropriate number of spill kits must be available and must be located in all areas where activities are being undertaken; - In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of according to the National Environmental Management: Waste Act 59 of 2008. Refer to Section 5.7 for procedures concerning storm and waste water management and 5.8 for solid and hazardous waste management. 						
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5.18 Workshop, equipment maintenance and storage

Impact management outcome: Soil, surface water and groundwater contamination is minimised.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Where possible and practical all maintenance of vehicles and equipment must take place in the workshop area; - During servicing of vehicles or equipment, especially where emergency repairs are effected outside the workshop area, a suitable drip tray must be used to prevent spills onto the soil. The relevant local authority must be made aware of a fire as soon as it starts; - Leaking equipment must be repaired immediately or be removed from site to facilitate repair; - Workshop areas must be monitored for oil and fuel spills; - Appropriately sized spill kit kept onsite relevant to the scale of the activity taking place must be available; - The workshop area must have a bunded concrete slab that is sloped to facilitate runoff into a collection sump or suitable oil / water separator where maintenance work on vehicles and equipment can be performed; - Water drainage from the workshop must be contained and managed in accordance Section 5.7: storm and waste water management. 	Developer	Method Statements	Throughout development phases	ECO	Throughout development phases. Weekly checks	Register

5.19 *Batching plants*

Impact management outcome: Minimise spillages and contamination of soil, surface water and groundwater.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Concrete mixing must be carried out on an impermeable surface; - Batching plants areas must be fitted with a containment facility for the collection of cement laden water. - Dirty water from the batching plant must be contained to prevent soil and groundwater contamination - Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains; - A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted; - Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licenced disposal facility; - Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site; - Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to Section 5.20: Dust emissions) 	Developer	Method Statements	Throughout development phases	ECO	Throughout development phases. Weekly checks	Register

<ul style="list-style-type: none"> - Any excess sand, stone and cement must be removed or reused from site on completion of construction period and disposed at a registered disposal facility; - Temporary fencing must be erected around batching plants in accordance with Section 5.5: Fencing and gate installation. 						
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5.20 Dust emissions

Impact management outcome: Dust prevention measures are applied to minimise the generation of dust.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO; - Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces must be revegetated or stabilised as soon as is practically possible; - Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present; - During high wind conditions, the ECO must evaluate the situation and make recommendations as to whether dust-damping measures are adequate, or whether working will cease altogether until the wind speed drops to an 	Developer	Method Statements	Throughout development phases	ECO	Throughout development phases. Weekly checks	Register

<p>acceptable level;</p> <ul style="list-style-type: none"> - Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind; - Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO; - Vehicle speeds must not exceed 40 km/h along dust roads or 20 km/h when traversing unconsolidated and non-vegetated areas; - Straw stabilisation must be applied at a rate of one bale/10 m² and harrowed into the top 100 mm of top material, for all completed earthworks; - For significant areas of excavation or exposed ground, dust suppression measures must be used to minimise the spread of dust. 						
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5.21 Blasting

Impact management outcome: Impact to the environment is minimised through a safe blasting practice.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Any blasting activity must be conducted by a suitably licensed blasting contractor; and - Notification of surrounding landowners, emergency services site personnel of blasting activity 24 hours prior to such 	Developer	Method Statements	Throughout development phases	ECO and Safety Officer	Throughout development	Register

activity taking place on Site.					phases. Weekly checks	
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5.22 Noise

Impact Management outcome: Unnecessary noise is prevented by ensuring that noise from construction activities is mitigated.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - The Contractor must keep noise level within acceptable limits, Restrict the use of sound amplification equipment for communication and emergency only; - All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained; - Any complaints received by the Contractor regarding noise must be recorded and communicated. Where possible or applicable, provide transport to and from the site on a daily basis for construction workers; - Develop a Code of Conduct for the construction phase in terms of behaviour of construction staff. Operating hours as determined by the environmental authorisation are adhered to during the development phase. Where not defined, it must be ensured that development activities must still meet the impact management outcome related to noise management. 	Developer	Method Statements	Throughout development phases	ECO and Safety Officer	Throughout development phases. Weekly checks	Register

5.23 Fire prevention

Impact management outcome: Prevention of uncontrollable fires.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Designate smoking areas where the fire hazard could be regarded as insignificant; - Firefighting equipment must be available on all vehicles located on site; - The local Fire Protection Agency (FPA) must be informed of construction activities; - Contact numbers for the FPA and emergency services must be communicated in environmental awareness training and displayed at a central location on site; - Two-way swop of contact details between ECO and FPA. 	Developer	Method Statements	Throughout development phases	ECO and Safety Officer	Throughout development phases. Weekly checks	Register

5.24 Stockpiling and stockpile areas

Impact management outcome: Erosion and sedimentation as a result of stockpiling are reduced.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses, watercourses and water bodies; - All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods; - Topsoil stockpiles must not exceed 2 m in height; - During periods of strong winds and heavy rain, the stockpiles must be covered with appropriate material (e.g. cloth, tarpaulin etc.); - Where possible, sandbags (or similar) must be placed at the bases of the stockpiled material in order to prevent erosion of the material. 	Developer	Method Statements	Throughout development phases	ECO	Throughout development phases. Weekly checks	Register

5.25 Finalising tower positions

Impact management outcome: No environmental degradation occurs as a result of the survey and pegging operations.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - No vegetation clearing must occur during survey and pegging operations; - No new access roads must be developed to facilitate access for survey and pegging purposes; - Project manager, botanical specialist and contractor to agree on final tower positions based on survey within assessed and approved areas; - The surveyor is to demarcate (peg) access roads/tracks in consultation with ECO. No deviations will be allowed without the prior written consent from the ECO. 	Developer	Method Statements	Throughout development phases	ECO	Throughout development phases. Weekly checks	Register

5.26 Excavation and Installation of foundations

Impact management outcome: No environmental degradation occurs as a result of excavation or installation of foundations.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - All excess spoil generated during foundation excavation must be disposed of in an appropriate manner and at a recognised disposal site, if not used for backfilling purposes; - Spoil can however be used for landscaping purposes and must be covered with a layer of 150 mm topsoil for 	Developer	Method Statements	Throughout development phases	ECO	Throughout development	Register

rehabilitation purposes; – Management of equipment for excavation purposes must be undertaken in accordance with Section 5.18: Workshop equipment maintenance and storage ; and – Hazardous substances spills from equipment must be managed in accordance with Section 5.17: Hazardous substances . – Batching of cement to be undertaken in accordance with Section 5.19 : Batching plants ; – Residual cement must be disposed of in accordance with Section 5.8: Solid and hazardous waste management .					phases. Weekly checks	
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5.27 Assembly and erecting towers

Impact management outcome: No environmental degradation occurs as a result of assembly and erecting of towers.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
– Prior to erection, assembled towers and tower sections must be stored on elevated surface (suggest wooden blocks) to minimise damage to the underlying vegetation; – In sensitive areas, tower assembly must take place off-site or away from sensitive positions; – The crane used for tower assembly must be operated in a manner which minimises impact to the environment;	Developer	Method Statements	Throughout development phases	ECO	Throughout development phases. Weekly checks	Register

<ul style="list-style-type: none"> - The number of crane trips to each site must be minimised; - Wheeled cranes must be utilised in preference to tracked cranes; - Consideration must be given to erecting towers by helicopter or by hand where it is warranted to limit the extent of environmental impact; - Access to tower positions to be undertaken in accordance with access requirements in specified in Section 8.4: Access Roads; - Vegetation clearance to be undertaken in accordance with general vegetation clearance requirements specified in Section 8.10: Vegetation clearing; - No levelling at tower sites must be permitted unless approved by the Development Project Manager or Developer Site Supervisor; - Topsoil must be removed separately from subsoil material and stored for later use during rehabilitation of such tower sites; - Topsoil must be stored in heaps not higher than 1m to prevent destruction of the seed bank within the topsoil; - Excavated slopes must be no greater than 1:3, but where this is unavoidable, appropriate measures must be undertaken to stabilise the slopes; - Fly rock from blasting activity must be minimised and any pieces greater than 150 mm falling beyond the Working Area, must be collected and removed; - Only existing disturbed areas are utilised as spoil areas; - Drainage is provided to control groundwater exit gradient with the spill areas such that migration of fines is kept to a minimum; - Surface water runoff is appropriately channelled through or 						
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<p>around spoil areas;</p> <ul style="list-style-type: none"> - During backfilling operations, care must be taken not to dump the topsoil at the bottom of the foundation and then put spoil on top of that; - The surface of the spoil is appropriately rehabilitated in accordance with the requirements specified in Section 5.29: Landscaping and rehabilitation; - The retained topsoil must be spread evenly over areas to be rehabilitated and suitably compacted to effect re-vegetation of such areas to prevent erosion as soon as construction activities on the site is complete. Spreading of topsoil must not be undertaken at the beginning of the dry season. 						
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5.28 Stringing

<p>Impact management outcome: No environmental degradation occurs as a result of stringing.</p>						
<p>Impact Management Actions</p>	<p>Implementation</p>			<p>Monitoring</p>		
	<p>Responsible person</p>	<p>Method of implementation</p>	<p>Timeframe for implementation</p>	<p>Responsible person</p>	<p>Frequency</p>	<p>Evidence of compliance</p>
<ul style="list-style-type: none"> - Where possible, previously disturbed areas must be used for the siting of winch and tensioner stations. In all other instances, the siting of the winch and tensioner must avoid Access restricted areas and other sensitive areas; - The winch and tensioner station must be equipped with drip 	<p>Developer</p>	<p>Method Statements</p>	<p>Throughout development phases</p>	<p>ECO</p>	<p>Throughout development phases.</p>	<p>Register</p>

<p>trays in order to contain any fuel, hydraulic fuel or oil spills and leaks;</p> <ul style="list-style-type: none"> - Refuelling of the winch and tensioner stations must be undertaken in accordance with Section 5.17: Hazardous substances; - In the case of the development of overhead transmission and distribution infrastructure, a one metre "trace-line" may be cut through the vegetation for stringing purposes only and no vehicle access must be cleared along "trace-lines". Vegetation clearing must be undertaken by hand, using chainsaws and handheld implements, with vegetation being cut off at ground level. No tracked or wheeled mechanised equipment must be used; - Alternative methods of stringing which limit impact to the environment must always be considered e.g. by hand or by using a helicopter; - Where the stringing operation crosses a public or private road or railway line, the necessary scaffolding/ protection measures must be installed to facilitate access. If, for any reason, such access has to be closed for any period(s) during development, the persons affected must be given reasonable notice, in writing; - No services (electrical distribution lines, telephone lines, roads, railways lines, pipelines fences etc.) must be damaged because of stringing operations. Where disruption to services is unavoidable, persons affected must be given reasonable notice, in writing; - Where stringing operations cross cultivated land, damage to crops is restricted to the minimum required to conduct stringing operations, and reasonable notice (10 work days minimum), in writing, must be provided to the landowner; 					<p>Weekly checks</p>	
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<ul style="list-style-type: none"> - Necessary scaffolding protection measures must be installed to prevent damage to the structures supporting certain high value agricultural areas such as vineyards, orchards, nurseries. 						
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5.29 Socio-economic

Impact management outcome: Socio-economic development is enhanced.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Develop and implement communication strategies to facilitate public participation; - Develop and implement a collaborative and constructive approach to conflict resolution as part of the external stakeholder engagement process; - Sustain continuous communication and liaison with neighbouring owners and residents - Create work and training opportunities for local stakeholders; and - Where feasible, no workers, with the exception of security personnel, must be permitted to stay over-night on the site. This would reduce the risk to local farmers. 	Developer	Method Statements	Throughout development phases	ECO	Throughout development phases. Weekly checks	Register

5.30 Temporary closure of site

Impact management outcome: Minimise the risk of environmental impact during periods of site closure greater than five days.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Bunds must be emptied (where applicable) and need to be undertaken in accordance with the impact management actions included in sections 5.17: management of hazardous substances and 5.18 workshop, equipment maintenance and storage; - Hazardous storage areas must be well ventilated; - Fire extinguishers must be serviced and accessible. Service records to be filed and audited at last service; - Emergency and contact details displayed must be displayed; - Security personnel must be briefed and have the facilities to contact or be contacted by relevant management and emergency personnel; - Night hazards such as reflectors, lighting, traffic signage etc. must have been checked; - Fire hazards identified and the local authority must have been notified of any potential threats e.g. large brush stockpiles, fuels etc.; - Structures vulnerable to high winds must be secured; - Wind and dust mitigation must be implemented; - Cement and materials stores must have been secured; - Toilets must have been emptied and secured; 	Developer	Method Statements	Throughout development phases	ECO	Throughout development phases. Weekly checks	Register

<ul style="list-style-type: none"> - Refuse bins must have been emptied and secured; - Drip trays must have been emptied and secured. 						
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5.31 Landscaping and rehabilitation

Impact management outcome: Areas disturbed during the development phase are returned to a state that approximates the original condition.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - All areas disturbed by construction activities must be subject to landscaping and rehabilitation; All spoil and waste must be disposed to a registered waste site and certificates of disposal provided; - All slopes must be assessed for contouring, and to contour only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983 - All slopes must be assessed for terracing, and to terrace only when the need is identified in accordance with the Conservation of Agricultural Resources Act, No 43 of 1983; - Berms that have been created must have a slope of 1:4 and be replanted with indigenous species and grasses that approximates the original condition; - Where new access roads have crossed cultivated farmlands, that lands must be rehabilitated by ripping which must be agreed to by the holder of the EA and the landowners; - Rehabilitation of tower sites and access roads outside of 	Developer	Method Statements	Throughout development phases	ECO	Throughout development phases. Weekly checks	Register

<p>farmland;</p> <ul style="list-style-type: none"> - Indigenous species must be used for with species and/grasses to where it compliments or approximates the original condition; - Stockpiled topsoil must be used for rehabilitation (refer to Section 5.24: Stockpiling and stockpiled areas); - Stockpiled topsoil must be evenly spread so as to facilitate seeding and minimise loss of soil due to erosion; - Before placing topsoil, all visible weeds from the placement area and from the topsoil must be removed; - Subsoil must be ripped before topsoil is placed; - The rehabilitation must be timed so that rehabilitation can take place at the optimal time for vegetation establishment; - Where impacted through construction related activity, all sloped areas must be stabilised to ensure proper rehabilitation is affected and erosion is controlled ; - Sloped areas stabilised using design structures or vegetation as specified in the design to prevent erosion of embankments. The contract design specifications must be adhered to and implemented strictly; - Spoil can be used for backfilling or landscaping as long as it is covered by a minimum of 150 mm of topsoil. - Where required, re-vegetation including hydro-seeding can be enhanced using a vegetation seed mixture as described below. A mixture of seed can be used provided the mixture is carefully selected to ensure the following: <ul style="list-style-type: none"> a) Annual and perennial plants are chosen; b) Pioneer species are included; c) Species chosen must be indigenous to the area with the seeds used coming from the area; d) Root systems must have a binding effect on the soil; 						
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e) The final product must not cause an ecological imbalance in the area						
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6 ACCESS TO THE GENERIC EMPr

Once completed and signed, to allow the public access to the generic EMPr, the holder of the EA must make the EMPr available to the public in accordance with the requirements of regulation 26(h) of the EIA Regulations.

PART B: SECTION 2

7 SITE SPECIFIC INFORMATION AND DECLARATION

7.1 Sub-section 1: contact details and description of the project

7.1.1 Details of the applicant:

Name of applicant: Hartebeesthoek Wind Power (Pty) Ltd

Tel No: 041 506 4900

Fax No: None

Postal Address: PO Box 71664, 6000

Physical Address: N/A

7.1.2 Details and expertise of the EAP:

Name of EAP: Arcus Consultancy South Africa Services (Pty) Ltd

Tel No: 021 412 1529

Fax No: None

E-mail address: ashlinb@arcusconsulting.co.za

Expertise of the EAP (Curriculum Vitae included): CV attached

7.1.3 Project name: Proposed Electrical Grid Connection and Associated Infrastructure for the San Kraal Split 1, Hartebeesthoek East, Phezukomoya Split 1, and Hartebeesthoek West Wind Energy Facilities, Eastern and Northern Cape Provinces

7.1.4 Description of the project:

The proposed development will consist of the following infrastructure:

- The proposed establishment of a 132 kV overhead power line (OHL) (HBH Corridor), which was not assessed as part of the original San Kraal WEF and Phezukomoya WEF. The HBH Corridor will transfer electricity from the authorised San Kraal substation to the proposed SK-PH collector substation or directly to the proposed Eskom Hydra D substation;
- A new proposed SK-PH collector substation which will be located within an approved corridor (i.e. of the authorised Phezukomoya WEF). This substation will collect electricity, of all the proposed WEFs, which will be transferred via a single 132 kV line to the proposed Eskom Hydra D substation;
- A proposed expansion to the authorised San Kraal substation, to facilitate the power generated by the proposed projects;
- San Kraal Split 1 132 kV proposed step-up substation, which will be located approximately 2.0 km NE of the approved San Kraal substation;

- Hartebeesthoek (HBH) East on-site substation, located approximately 2.3 km SW of the San Kraal substation;
- Phezukomoya Split 1 substation, located to the east of the approved Phezukomoya substation;
- A slight move of the authorised Phezukomoya switching station, located approximately 2.5 km SE of the San Kraal substation for the proposed Hartebeesthoek (HBH) West WEF;
- A new temporary batching plant 2 for the Phezukomoya Split 1 WEF;
- New access points, namely A and B which will provide access to the proposed WEFs and Access Point C which will be used for grid access once the line is built; and
- The proposed establishment of up to eight 132 kV overhead power lines (OHL) dependent on which WEF project phase goes ahead first, and the best possible evacuation on figuration (located within the approved Phezukomoya and San Kraal WEF sites). The OHLs proposed are required to transfer the electricity generated by the new proposed WEFs on-site substations to the authorised Phezukomoya and / or San Kraal substation.

7.1.5 Project location: The proposed development is located approximately 10 km south of the town of Noupoort in the Umsobomvu Local Municipality (ULM) which forms part of the Pixley ka Seme District in the Northern Cape Province. A portion of the proposed development site falls within the Inxuba Yethemba Local Municipality, in the Chris Hani District of the Eastern Cape Province. The town of Middelburg and Colesberg are located approximately 25 km and 60 km to the south and north-east of the site respectively.

Table D: The 21 digit Surveyor General code of each cadastral land parcel

Farm Number	21 SG Code	Farm Number	21 SG Code
RE 181	C02100000000018100000	3/1	C04800000000000100003
15/182	C02100000000018200015	2/11	C04800000000001100002
3/182	C02100000000018200003	12/1	C04800000000000100012
46/182	C02100000000018200046	RE/117	C03000000000011700000
14	C04800000000001400000	1/117	C03000000000011700001
RE/13	C04800000000001300000	RE/118	C03000000000011800000
1/11	C04800000000001100001	4/11	C04800000000001100004
47/182	C02100000000018200047	RE/11	C04800000000001100000
2	C0480000000000200000	RE/ 8/11	C04800000000001100008
RE/13/1	C0480000000000100013	5	C04800000000000500000

RE/182	C02100000000018200000	RE/6	C04800000000000600000
RE/1/1	C04800000000000100001	3/8	C04800000000000800003
RE/11/1	C04800000000000100011	4/8	C04800000000000800004
18/1	C04800000000000100018		

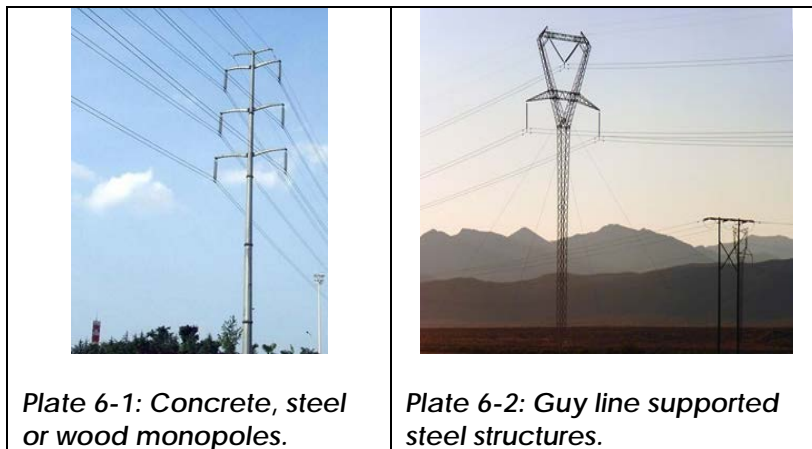
7.16 Preliminary technical specification of the overhead transmission and distribution:

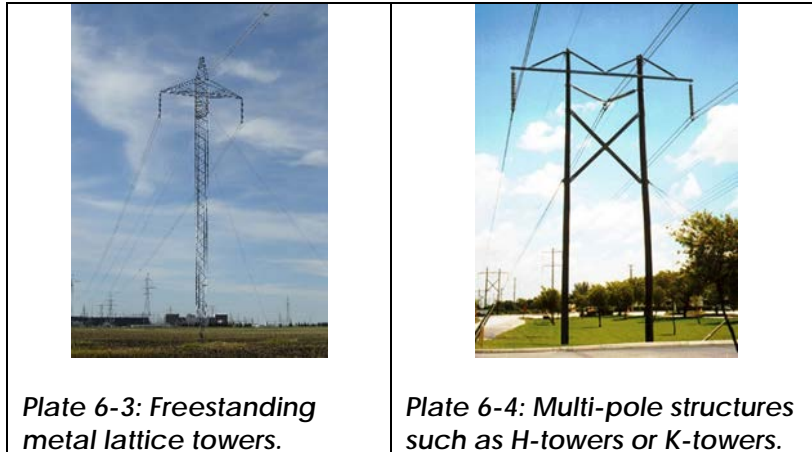
- Length: Approximately 30 km
- Tower parameters : To be confirmed

Note that technologies change on a regular basis and the most reliable, safest and cost-effective technology that is available and that meets industry standards will be used. Alternatives are proposed for the type of structures which will support the overhead lines. These may include:

- Concrete, steel or wood monopoles (preferred);
- Guy line supported steel structures (small footprint);
- Freestanding metal lattice towers; or
- Multi-pole structures such as H-towers or K-towers.

Refer to **Plates 6-1 to 6 -4** for typical examples of these tower types. All aspects of the grid connection, including powerline and supporting structures would need to adhere to industry standards.





Alternative 1 (preferred alternative)

The preferred supporting structure would be a concrete or steel monopole as these are the Eskom standard, are cost-effective and what was approved for the San Kraal WEF and Phezukomoya WEF. This preferred structure would be subject to line design and engagement with Eskom.

Alternatives 2-4

Freestanding metal lattice towers or guy-line supported steel structures would be beyond the need of the conductor in this case. In addition, these structures are expensive and therefore not considered reasonable or feasible for the proposed application.

7.2 Sub-section 2: Development footprint site map

This sub-section must include a map of the site sensitivity overlaid with the preliminary infrastructure layout. The sensitivity map must be prepared from the national web-based environmental screening tool, when available for compulsory use at: <https://screening.environment.gov.za/screeningtool>. The sensitivity map shall identify the nature of each sensitive feature e.g. raptor nest, threatened plant species, archaeological site, etc. Sensitivity maps shall identify features both within the planned working area and any known sensitive features in the surrounding landscape. The overhead transmission and distribution profile shall be illustrated at an appropriate resolution to enable fine-scale interrogation. It is recommended that <20 km of overhead transmission and distribution length is illustrated per page in A3 landscape format. Where considered appropriate, photographs of sensitive features in the context of tower positions shall be used.

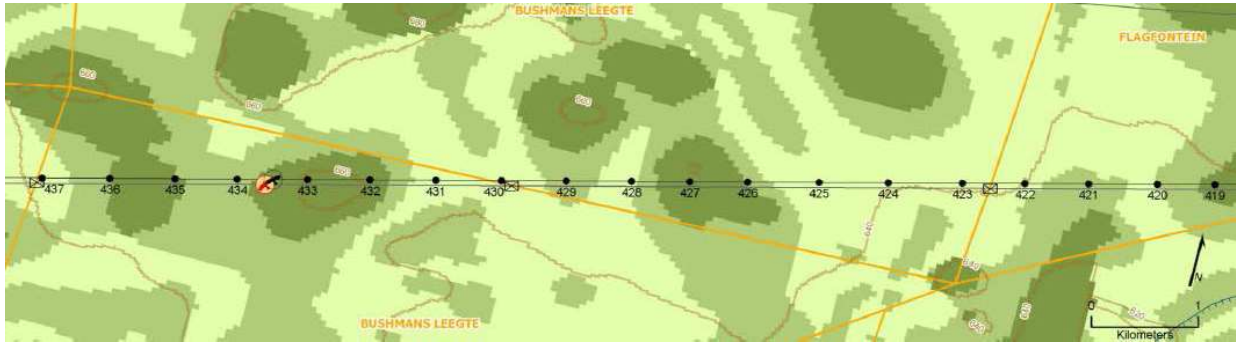


Figure 1: Example of an environmental sensitivity map in the context of a final overhead transmission and distribution profile

7.3 Sub-section 3: Declaration

The proponent/applicant or holder of the EA affirms that he/she will abide and comply with the prescribed impact management outcomes and impact management actions as stipulated in part B: section 1 of the generic EMPr and have the understanding that the impact management outcomes and impact management actions are legally binding. The proponent/applicant or holder of the EA affirms that he/she will provide written notice to the CA 14 days prior to the date on which the activity will commence or commencement of construction to facilitate compliance inspections.

Signature Proponent/applicant/ holder of EA

Date:

20/09/2019

7.4 Sub-section 4: amendments to site specific information (Part B; section 2)

Should the EA be transferred to a new holder, Part B: Section 2 must be completed by the new holder and submitted with the application for an amendment of the EA in terms of Regulations 29 or 31 of the EIA Regulations, whichever applies. The information submitted for an amendment to an environmental authorisation will be considered to be incomplete should a signed copy of Part B: Section 2 not be submitted. Once approved, Part B: Section 2 forms part of the EMPr for the development and the EMPr becomes legally binding to the new EA holder.

PART C

8 SITE SPECIFIC ENVIRONMENTAL ATTRIBUTES

If any specific environmental sensitivities/attributes are present on the site which require more specific impact management outcomes and impact management actions, not included in the pre-approved generic EMPr template, to manage impacts, those impact management outcomes and actions must be included in this section. These specific management controls must be referenced spatially and must include impact management outcomes and impact management actions. The management controls including impact management outcomes and impact management actions must be presented in the format of the pre-approved generic EMPr template. This applies only to additional impact management outcomes and impact management actions that are necessary.

If Part C is applicable to the development as authorised in the EA, it is required to be submitted to the CA together with the BAR or EIAR, for consideration of, and decision on, the application for EA. The information in this section must be prepared by an EAP and the name and expertise of the EAP, including the curriculum vitae are to be included. Once approved, Part C forms part of the EMPr for the site and is legally binding.

This section will **not be required** should the site contain no specific environmental sensitivities or attributes.

8.1 Protection of water courses and estuaries

Impact management outcome: Pollution and contamination of the watercourse environment and or estuary erosion are prevented.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - All construction materials including fuels and oil should be stored in demarcated areas that are contained within berms / bunds to avoid spread of any contamination / leaks. - Washing and cleaning of equipment should also be done in berms or bunds, to trap any cement / hazardous substances and prevent excessive soil erosion. - Mechanical plant and bowsers must not be refuelled or serviced within or directly adjacent to any channel. - It is suggested that all construction camps, lay down areas, batching plants or areas and any stores should be located more than 50 m from any demarcated watercourses. - No transmission line towers, substations and construction camps will be placed within the delineated watercourses as well as their respective buffers without obtaining the required approvals from the relevant competent authority. - A comprehensive rehabilitation plan is recommended to be implemented from the project onset within watercourse areas (including of buffers) to ensure a net benefit to the aquatic environment. This should form part of the suggested walk down as part of the final EMPr preparation. 	Developer	Method Statements	Throughout development phases	ECO	Throughout development phases. Weekly checks	Register

8.2 Protection of Terrestrial Ecology

Impact management outcome: Minimise impact fauna and flora.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Minimise the development footprint as far as possible and rehabilitate disturbed areas that are no longer required by the operational phase of the development. - Demarcate sensitive areas in close proximity to the development footprint as no-go areas with construction tape or similar and clearly mark as no-go area. - The illegal collection, hunting or harvesting of any plants or animals at the site should be strictly forbidden. Personnel should not be allowed to wander off the construction site. - Fires within suitable dedicated containers (i.e. braai drums etc.) should only be allowed within the construction camp and similar demarcated and cleared areas and no fires should be allowed in the open veld as there is a risk of runaway veld fires. - If any parts of site such as construction camps must be lit at night, this should be done with low-UV type lights (such as most LEDs) as far as practically possible, which do not attract insects and which should be directed downwards. - There should be regular monitoring for erosion for at least 2 years after decommissioning by the applicant to ensure that no erosion problems develop as result of the disturbance, and if they do, to immediately implement erosion control measures. 	Developer	Method Statements	Throughout development phases	ECO / Developer	As and when required	Register

<ul style="list-style-type: none"> - All erosion problems observed should be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques. - All disturbed and cleared areas should be revegetated with indigenous perennial shrubs and grasses from the local area. 						
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8.3 Avifauna displacement due to disturbance

Impact management outcome: Minimise displacement of priority species, particularly Red Data species, due to disturbance associated with the construction of the powerlines and substations.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - All contractors are to adhere to the EMPr and should apply good environmental practice during construction. - No off-road driving; - Maximum use of existing roads; - Measures to control noise; - Restricted access to the rest of the property; - The appointed Environmental Control Officer (ECO) must be trained by an avifaunal specialist to identify the potential priority species as well as the signs that indicate possible breeding by these species. The ECO must then, during audits/site visits, make a concerted effort to look out for such breeding activities of especially Red Data species, and such efforts may include the training of construction staff to identify Red Data species, followed by regular questioning of staff as to the regular whereabouts on site of these species. If any of the Red Data species are confirmed to be breeding (e.g. if a nest site is found), construction activities within 500m 	Developer	Method Statements	Throughout development phases	ECO Avifaunal Specialist	Once before construction commences Quarterly	Register

<p>of the breeding site must cease, and an avifaunal specialist is to be contacted immediately for further assessment of the situation and instruction on how to proceed.</p> <ul style="list-style-type: none"> - Prior to construction, an avifaunal specialist should conduct a site walkthrough, covering the final power line route, to identify any nests/breeding/roosting activity of priority species, the results of which may inform the final construction schedule in close proximity to that specific area, including abbreviating construction time, scheduling activities around avian breeding and/or movement schedules, and lowering levels of associated noise. 						
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8.4 Avifauna electrocution

Impact management outcome: Prevention of Electrocution of priority avifauna in the substations.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - The hardware within the proposed substation yards is too complex to warrant any mitigation for electrocution at this stage. If on-going impacts are recorded once the wind farm is operational, site-specific mitigation must be applied reactively. This is an acceptable approach because priority avifauna, especially Red Data species, is unlikely to frequent the substation and be electrocuted. 	<p>Developer</p>	<p>Method Statements</p>	<p>Throughout development phases</p>	<p>ECO Avifaunal Specialist</p>	<p>As and when required Quarterly</p>	<p>Register</p>

8.5 Protection of heritage resources

Impact management outcome: Minimise impact to heritage resources.

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - A fossil chance finds procedure must be implemented and applied during earthworks to ensure that any substantial fossil remains (such as vertebrate bones, teeth or trackways, plant-rich fossil lenses or dense fossil burrow assemblages) are reported. - Any fossil finds must be safeguarded by the responsible Environmental Control Officer, preferably in situ, and the responsible heritage management authority (SAHRA for the Northern Cape or ECPRHA for the Eastern Cape) notified of the find immediately so that appropriate mitigation action can be taken by a professional palaeontologist. 	Developer	Method Statements	Throughout development phases	ECO Palaeontologist	As and when required Quarterly	Register
<ul style="list-style-type: none"> - The responsible heritage management authority (SAHRA for the Northern Cape or ECPRHA for the Eastern Cape) must be notified of any finds immediately so that appropriate mitigation action can be taken by a professional archaeologist. - Historical farmyards and buildings, particularly the cluster of buildings represented by JR003-004 and JR006-007, must be avoided and any old stone kraals or ruins must not be disturbed. This includes not removing stone from walls, or artefacts from the earth or earth surface. - Any chance discoveries of human remains must be reported to the appropriate heritage authority and project archaeologist. 	Developer	Method Statements	Throughout development phases	ECO Archaeologist	As and when required Quarterly	Register

8.6 Visual Impacts

Impact management outcome: Visual impacts

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Carefully plan to minimise the construction period and avoid construction delays. - Inform receptors of the construction programme and schedules. - Limit the number of vehicles and trucks travelling to and from the construction site, where possible. - Where possible, limit the amount of security and operational lighting present at the on-site substation. - Light fittings for security at night should reflect the light toward the ground and prevent light spill. - Non-reflective surfaces should be utilised where possible. - The operations and maintenance buildings should not be illuminated at night, if possible. - The operation and maintenance buildings should be painted with natural tones that fit with the surrounding environment. Non-reflective surfaces should be utilised where possible. - 	Developer	Method Statements	Throughout development phases	ECO and safety officer	Throughout development phases. Monthly checks	Register

8.7 Socio-Economic

Impact management outcome: Socio-economic development is enhanced.						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Where feasible, efforts should be made to employ local contractors that are compliant with Broad-Based Black Economic Empowerment (BBBEE) criteria. - Before the construction phase commences the proponent should meet with representatives from the ULM and IYLM to 	Developer	Method Statements	Throughout development phases	Developer and Client Liaison Officer (CLO)	Throughout development phases.	Register

<p>establish the existence of a skills database for the area. If such as database exists, it should be made available to the contractors appointed for the construction phase.</p> <ul style="list-style-type: none"> - The local authorities, relevant community representatives and local farmers should be informed of the final decision regarding the project and the potential job opportunities for locals and the employment procedures that the proponent intends following for the construction phase of the project. - Where feasible training and skills development programmes for local workers should be initiated prior to the initiation of the construction phase. - The recruitment selection process should seek to promote gender equality and the employment of women wherever possible. - The proponent should liaise with the ULM and IYLM with regards the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers (e.g. construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction contractors. These companies should be notified of the tender process and invited to bid for project-related work. - Where possible, the proponent should assist local BBBEE companies in completing and submitting the required tender forms and associated information. - The ULM and IYLM, in conjunction with the local business sector and representatives from the local hospitality industry, should identify strategies aimed at maximising the potential benefits associated with the project. - The proponent should hold contractors liable for compensating farmers in full for any stock losses and/or damage to farm infrastructure that can be linked to construction workers. This should be contained in the Code of Conduct to be signed between the proponent, the contractors and neighbouring landowners. The agreement 					<p>Monthly checks</p>	
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should also cover losses and costs associated with fires caused by construction workers or construction-related activities.						
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8.8 Traffic Impacts

Impact management outcome: Traffic Impacts						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
<ul style="list-style-type: none"> - Arrival and departure of abnormal and heavy vehicle traffic should be coordinated and distributed throughout the day. - The community must be informed before the start of site activities. - Use of access points is recommended subject to approval from SANRAL. Access points must be priority stop-controlled, with the national roads as priority. - Provision must be made for 500 m acceleration lanes, to allow trucks turning onto a road to accelerate before entering the traffic stream, and road widened to allow for dedicated right turn and left turn (auxiliary lanes) lanes off the main road and must consider the turning circles of the vehicles expected to need to access the site. - Routine maintenance works (repairs and reseals) on the roads to maintain road surface condition. - A comprehensive route assessment of the entire route is recommended should the project be awarded to a preferred bidder as part of the REIPPP process. - Clearances permits will be required for the transport of the Wind turbine components. - It is recommended that applications for Abnormal Permits be lodged to the Department of Transport and Public Works, Eskom and Telkom 	Developer	Method Statements	Throughout development phases	ECO and safety officer	Throughout development phases. Weekly checks	Register

APPENDIX 1: METHOD STATEMENTS

To be prepared by the contractor prior to commencement of the activity. The method statements are **not required** to be submitted to the CA.

CURRICULUM VITAE

Ashlin Bodasing

Technical Director and Environmental Assessment Practitioner

Email: ashlinb@arcusconsulting.co.za Tel: +27 (0) 21 412 1529



Specialisms

- Environmental Impact Assessments
- Environmental Management Plans
- Environmental Feasibility Studies
- Environmental Due Diligence and Compliance
- Client Relationship Management

Summary of Experience

Ashlin Bodasing is a Technical Director at Arcus Consultancy Services South Africa (Pty) Ltd. She manages the Arcus South African office and the team based in Cape Town. Having obtained her Bachelor of Social Science Degree (Geography and Environmental Management) from the University of Kwa-Zulu Natal; she has over fourteen years' experience in the environmental consulting industry in southern Africa. She has gained extensive experience in the field of Integrated Environmental Management, environmental impact assessments and public participation. She has also been actively involved in a number of industrial and infrastructural projects, including electricity power lines and substations; road and water infrastructure upgrades and the installation of telecommunication equipment, green and brown field coal mines, as well as renewable energy facilities, both wind and solar. Ashlin has excellent Project Management experience and has gained major project experience in the development of Environmental Impact Assessments, Environmental Management Plans and the monitoring of construction activities. Her areas of expertise include project management, environmental scoping and impact assessments, environmental management plans, environmental compliance monitoring and environmental feasibility studies. Experience also includes International Finance Corporation Performance Standards and World Bank Environmental Guidelines environmental due diligence reviews. She has worked in Mozambique, Namibia, Botswana, Lesotho and Zimbabwe.

Professional History

- 2017 – Present** – Technical Director, Arcus Consultancy Services South Africa
- 2015 - 2017** – Team Leader, Arcus Consultancy Services Ltd
- 2012 – 2015** – Lead Environmental Officer, Tweefontein Optimisation Project, Glencore / Xstrata Coal Mine, Witbank, Mpumalanga, South Africa (secondment)
- 2007-2015** - Senior Environmental Assessment Practitioner, Parsons Brinckerhoff Africa
- 2005-2007** – Environmental Consultant, WSP Environment and Energy

Ashlin spent over 2 years at the Glencore (previously Xstrata Coal SA) – Tweefontein Optimisation Project, as the sole environmental officer permanently on site overseeing all their construction projects, ensuring contractor compliance to EMP and Environmental Authorisations. This included the construction of the internal and external infrastructure packages. Roles include ensuring all construction and development are in line with the EIA and EMP for the project. Areas of responsibility include the Mine Infrastructure Area, the Explosives Magazine Area, construction of a secondary school, construction of residential houses, and the rail load out facility. Role also included review of environmental impact assessment applications and reports submitted to the department of environmental affairs for the project.

Qualifications and Professional Interests

- **University of Kwa-Zulu Natal, 2004**
Bachelor of Social Science (Geography and Environmental Management)

Project Experience

- **Environmental Impact Assessments**
• **Highlands North, South and Central Wind Energy Facilities, 2018-present.**
Project Director (client liaison) and Lead EAP.

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- **Paulputs Wind Energy Facility, 2018-present.** Project Director (client liaison) and Lead EAP.
- **San Kraal Wind Energy Facility, 2016- 2018.** Project Director (client liaison) and Lead EAP.
- **Phezukomoya Wind Energy Facility, 2016 – 2018.** Project Director (client liaison) and Lead EAP.
- **Kolkies and Karee Wind Energy Facilities, 2016-2016.** Project Director (Client liaison) and Lead EAP.
- **Komsberg East and West Wind Energy Facilities 2015-2016.** Project Director (Client Liaison) and EAP.
- **Umsinde Emoyeni Wind Energy Facilities, 2015-2018.** Project Director (Client Liaison) and EAP.

Ecological Impact Assessments and Monitoring

- **Confidential Wind Farm, 2017-2018, Northern Cape Province.** Project Director (Client Liaison), coordination and management of ecologists (bird and bat), review of technical and specialists impact assessments.
- **Paulputs Wind Energy Facility 2017-present, Northern Cape Province.** Project Director (Client Liaison), coordination and management of ecologists (bird and bat), review of technical and specialists impact assessments.
- **Highlands Wind Energy Facilities 2017 – 2018, Northern Cape Province.** Project Director (Client Liaison), coordination and management of ecologists (bird and bat), review of technical and specialists impact assessments.
- **Komsberg Wind Farms, 2015-2016.** Project Director (Client Liaison), coordination and management of ecologists (bird and bat), review of technical and specialists impact assessments.
- **Kolkies and Karee Wind Energy Facilities 2015-2016.** Project Director (Client Liaison), coordination and management of bird and bat specialists and review of technical and impact assessment reports.
- **Umsinde Wind Energy Facilities, Additional Bird Monitoring.** Project Director. Coordination and management of bird specialists and review of technical reports.
- **Kap Vley Wind Energy Facility, Bird and Bat Pre-Construction Monitoring.** Project Director. Coordination and management of bird and bat specialists, review of technical reports.
- **Highlands Wind Energy Facility, Bird and Bat Pre-Construction Monitoring.** Project Director. Coordination and management of bird and bat specialists, review of technical reports.
- **Hopefield Wind Farm –Operational Monitoring.** Project Manager. Coordination and management of bird and bat specialists, review of technical reports.
- **Gouda Wind Farm – Operation Monitoring.** Project Director. Coordination and management of bird and bat specialists, review of technical reports.

Feasibility Studies and Due Diligence Reviews

- **Ecological due diligence for IFC PS6 – Wind Energy Developments:** Project Manager. Review and reporting on bird and bat specialist reports to IFC/World Bank Standards – Various sites across South Africa.
- **Power Plant – Ghana.** Project Manager Compilation of environmental due diligence for refinancing, IFC and World Bank Standards, on behalf of Botswana Development Corporation.
- **Ecological Feasibility Study.** Project Director. Review of the feasibility of a site for a wind energy facility in relation to bats.
- **Environmental Feasibility Study.** Project Director and EAP. Review of a proposed site for the development of industrial facility.

Previous Project Experience

CURRICULUM VITAE

Environmental Scoping and Impact Assessments and Project Management for:

- eThekweni Municipality
- Moreland Developments
- RBCH – Bulk Materials and Handling Facility
- SAPREF
- Mittal Steel Permit Amendment
- Transnet Projects
- ArcelorMittal South Africa
- MCA-Lesotho
- Talbot Group Holdings (Australian Mining Company)
- Ncondezi Energy – Mozambique

Environmental Management Plans and Compliance Monitoring

- Nongoma Road Monitoring – Compliance Monitoring
- eThekweni Municipality - Taxi Holding Areas: Canberra Road and Umgeni Road Compilation of the EMP; and Bi-monthly compliance monitoring (site visits) and reporting.
- EMP for Kwezi V3 - Kwamashu Fuel Tank Exemption
- eThekweni Municipality - Ridgeview Road – Compliance Monitoring
- eThekweni Municipality and Merz and McLellen - Phoenix Overhead Transmission Lines – Compliance Monitoring
- eThekweni Municipality and Merz and McLellen - E8546 E8699 Compliance Monitoring
- eThekweni Municipality and Merz and McLellen - Environmental Assessment and EMP
- EMP for eThekweni Municipality - Parlock Switching Station

Training and Auditing

- Petronet Alien Plant Training - Compilation of the training material for alien plant identification and removal methods.
- eThekweni Municipality - Taxi Holding Areas – Canberra and Umgeni Road - Contactor and workforce training.
- eThekweni Municipality - Kingsway Road Taxi Rank - Contactor and workforce training.

Environmental Reviews / Terms of Reference

- Biotherm Energy - Environmental Project Manager: Independent review of environmental impact assessment reports and management plans compiled for 3 wind farms in the Western Cape and 2 PV Solar Plants in the Northern Cape, to ensure compliance to IFC and World Bank Standards.
- Government of Zimbabwe – Hwange Power Station - Environmental Project Manager: Compilation of the Terms of Reference for Environmental Management Plan and Environmental and Social Audit of the Hwange Power Plant in Zimbabwe.

Pre-Feasibility Studies

- Pre-feasibility studies for eThekweni Municipality, Investec, Sekoko Coal Resources, Mulilo, Sekoko Mining and MCA-Lesotho for renewable energy, coal mines and power plants.

**APPENDIX C: SITE AND POSTER NOTICES AND NEWSPAPER
ADVERTISEMENT**

San Kraal and Phezukomoya Site Notice Placements

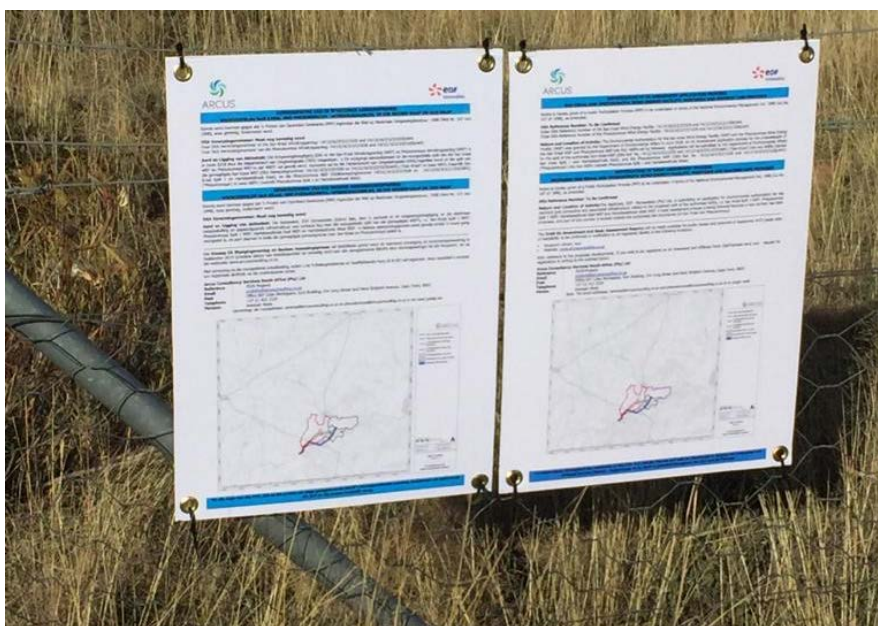


Site Notice Placement S Site Boundary
S 31° 18.573' ; E 024° .55.253'



Site Notice Placement SW Site Boundary S 31° 17.074' ; E 024° .50.520'

San Kraal and Phezukomoya Site Notice Placements

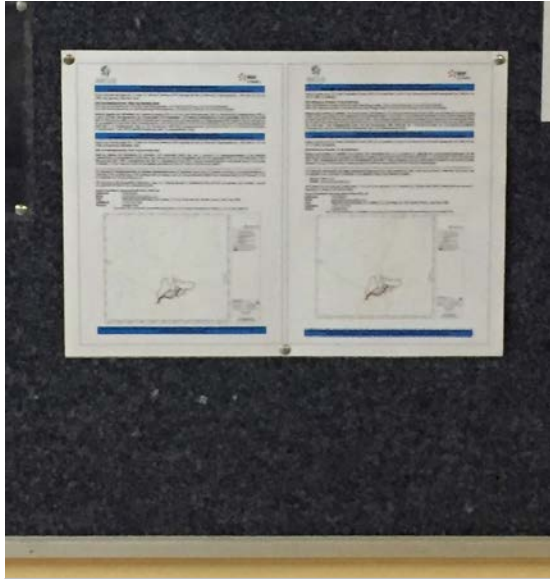


Site Notice Placement N Site Boundary
S 31°10.464' ; E 024°57.808'



Site Notice Placement NE Site Boundary S 31°12.113' ; E 025°02.401'

San Kraal and Phezukomoya Poster Placement: Middelburg



Middelburg Police Station

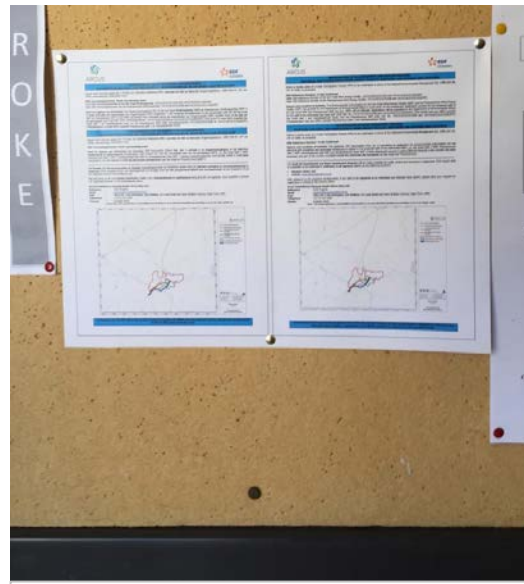


NG Kerk Middelburg-Karoo



Middelburg Keg and Springbuck Pub & Restaurant

San Kraal and Phezukomoya Poster Placement: Middelburg



Middelburg Wilhelm Stahl Hospital



Middelburg Karoo Apteek / Pharmacy

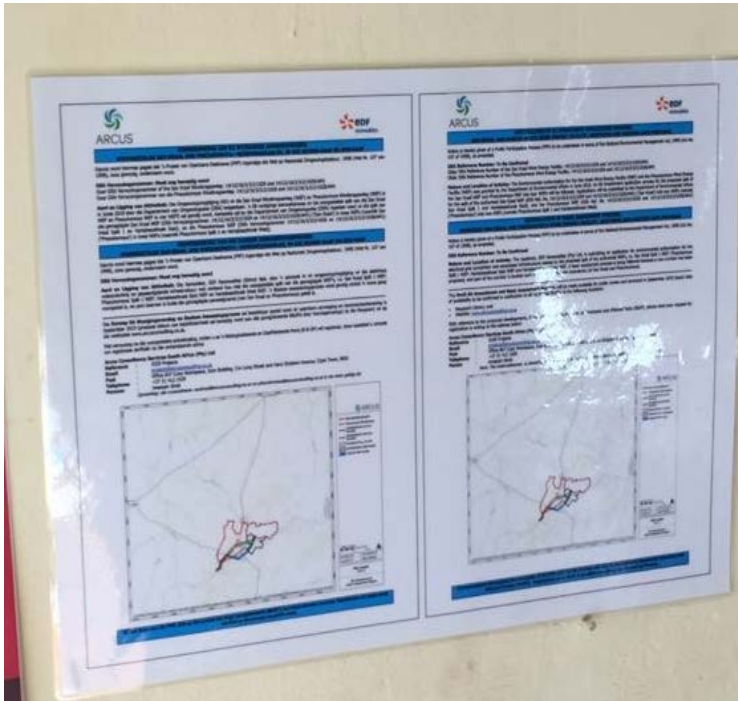
San Kraal and Phezukomoya Poster Placement: Noupoot



Noupoot Police Station



Noupoot Fritz Visser CHC Hospital



Noupoot Foodzone



San Kraal and Phezukomoya Poster Placement: Noupoort



Noupoort Umsobomvu Municipality



Noupoort Post Office

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GROUP EDITORS

Audit

The distribution of this ABC newspaper is independently audited to the professional standards administered by the Audit Bureau of Circulations of South Africa.

Nodige reën, nuwe dinge en 'n stel krukke: hallo, lente

"Ek gaan nou lekker *spring clean*," sê 'n vrou Maandag vir haar vriendin in Karoostraat.

Kry jou antihistamien gereed en pak solank die swaar winterbaadjies weg (of miskien nie heeltemal nie, laasjaar dié tyd het dit gesneeu in Graaff-Reinet); lente is hier. Hoekom wil ons altyd hierdie tyd van die jaar ons huise en lewens regruk?

Sommige navorsing meen dit kom van Nowruz af; die Iranese Nuwe Jaar,



Redakteursbrief
deur Paula-Ann Smit

wat op die eerste dag van lente in die Noordelike Halfron is. Ander glo weer dit kom van Ortodokse nasies af, wat huis en kerk skoonmaak aan die begin van lente voor Goeie Vrydag.

Miskien is ander net moeg na die lang

en droë winter? Saterdag het ons stukkie Karoo die nuwe seisoen gevier met 1 mm-reën in die Perdeskoen-area. Hierdie broodnodige hulpbron word weer voorspel vir Donderdag, 5 September. Ons kan maar net hoop.

Ek probeer self my lewe agtermekaar kry wat gesondheid aanbetref, want die winter was lank, en die kos wat Vic aandra te lekker.

Die dag voor lente gaan draf ek in George. Ek verkyk my aan die groenigheid wat ons nie hier ken nie, en val toe oor 'n boomwortel.

Arms het geswaai, enkels het geknak; dit was nie 'n mooi prentjie nie.

"Moet ek iemand bel?" vra 'n vrou. Ek knik, want ek kan nie opstaan nie. "Wie?" wil sy weet. Ek huil: "Ek ken niemand nie!" Die arme vrou weet nie wat om met my te maak nie; ek sou ook nie.

Ek gaan nie weer gou fiks verkeer nie, tensy dit met twee krukke is. Wie weet wat my sal oorkom as die eerste Karoo-hittegolf ons tref? Daardie dag bly ek maar tuis.



WOORD VAN DIE WEEK IS...

In samewerking met die **Woordeboek van die Afrikaanse Taal (WAT)** sal die Advertiser weekliks 'n ongewone of interessante woord publiseer. Het jy 'n woord wat jy graag met ons wil deel? Stuur dit gerus na paula@groupeditors.co.za. Besoek www.wat.co.za om 'n Afrikaanse woord te borg of te koop. Vandeesweek se Woord van die Week is ingestuur deur lesers Tertia Haarhoff. Dankie vir jou lente-bydra, Tertia!



NOTIFICATION OF EA AMENDMENT APPLICATION PROCESS: SAN KRAAL AND PHEZUKOMOYA WIND ENERGY FACILITY, NORTHERN AND EASTERN CAPE PROVINCE

Notice is hereby given of a Public Participation Process (PPP) to be undertaken in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

DEA Reference Number: To Be Confirmed

Older DEA Reference Number of the San Kraal WEF: 14/12/16/3/3/2/1029 and 14/12/16/3/3/2/1029/AM1 and the Phezukomoya WEF: 14/12/16/3/3/2/1028 and 14/12/16/3/3/2/1028/AM1

Nature and Location of Activity: The Environmental Authorisation for the San Kraal Wind Energy Facility (WEF) and the Phezukomoya Wind Energy Facility (WEF) was granted by the Department of Environmental Affairs in June 2018. An EA Amendment application process for the proposed split of the San Kraal WEF and Phezukomoya WEF into four WEFs will be followed. Applications will be submitted to the Department of Environmental Affairs for the split of the authorised San Kraal WEF (DEA Ref. No. 14/12/16/3/3/2/1029 and 14/12/16/3/3/2/1029/AM1) ('San Kraal') into two WEFs (namely San Kraal Split 1 and Hartebeesthoek East), and the Phezukomoya WEF (DEA Ref. No. 14/12/16/3/3/2/1028 and 14/12/16/3/3/2/1028/AM1) ('Phezukomoya') into two WEFs (namely Phezukomoya Split 1 and Hartebeesthoek West).

NOTIFICATION OF BASIC ASSESSMENT PROCESS: PROPOSED SAN KRAAL AND PHEZUKOMOYA WIND ENERGY FACILITY, NORTHERN AND EASTERN CAPE PROVINCE

Notice is hereby given of a Public Participation Process (PPP) to be undertaken in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

DEA Reference Number: To Be Confirmed

Nature and Location of Activity: The Applicant: EDF Renewables (Pty) Ltd, is submitting an application for environmental authorisation for the electrical grid connection and associated infrastructure related to the proposed split of the authorised WEFs, i.e. San Kraal Split 1 WEF; Phezukomoya Split 1 WEF; Hartebeesthoek East WEF and Hartebeesthoek West WEF. A basic assessment process is being followed because a new corridor has been proposed, and part of the corridor is located outside the authorised site boundaries (of San Kraal and Phezukomoya).

The **Draft EA Amendment and Basic Assessment Reports** will be made available for public review and comment in September 2019 (exact date of availability to be confirmed in notification to all registered I&APs) at the Noupoot Library and on the website: www.arcusconsulting.co.za.

With reference to the proposed developments, if you wish to be registered as an Interested and Affected Party (I&AP), please send your request for registration in writing to the address below.

KENNISGEWING VAN EA WYSIGINGS AANSOEKPROSES: VOORGESTELDE SAN KRAAL AND PHEZUKOMOYA – WINDKRAAGANLEG, IN DIE NOORD-KAAP EN OOS-KAAP

Kennis word hiermee gegee dat 'n Proses van Openbare Deelname (PPP) ingevolge die Wet op Nasionale Omgewingsbestuur, 1998 (Wet Nr. 107 van 1998), soos gewysig, onderneem word.

DEA Verwysingsnommer: Moet nog bevestig word

Ouer DEA Verwysingsnommer of the San Kraal WEF: 14/12/16/3/3/2/1029 and 14/12/16/3/3/2/1029/AM1 en Phezukomoya WEF: 14/12/16/3/3/2/1028 and 14/12/16/3/3/2/1028/AM1

Aard en Ligging van Aktiwiteit: Die Omgewingsmagtiging (EA) vir die San Kraal Windkragaanleg (WEF) en Phezukomoya Windkragaanleg (WEF) is in Junie 2018 deur die Departement van Omgewingsake (DEA) toegestaan. 'n EA wysigings aansoekproses vir die voorgestelde split van die San Kraal WEF en Phezukomoya WEF in vier WEFS sal gevolg word. Aansoeke sal by die Departement van Omgewingsake (DEA) ingedien word vir die split van die gemagtigde San Kraal WEF (DEA Verwysingsnommer. 14/12/16/3/3/2/1029 en 14/12/16/3/3/2/1029/AM1) ('San Kraal') in twee WEFs (naamlik San Kraal Split 1 en Hartebeesthoek East), en die Phezukomoya WEF (DEA Verwysingsnommer 14/12/16/3/3/2/1028 en 14/12/16/3/3/2/1028/AM1) ('Phezukomoya') in twee WEFs (naamlik Phezukomoya Split 1 en Hartebeesthoek West).

KENNISGEWING VAN DIE BASIESE ASSESSERINGSPROSES: VOORGESTELDE SAN KRAAL AND PHEZUKOMOYA – WINDKRAAGANLEG, IN DIE NOORD-KAAP EN OOS-KAAP

Kennis word hiermee gegee dat 'n Proses van Openbare Deelname (PPP) ingevolge die Wet op Nasionale Omgewingsbestuur, 1998 (Wet Nr. 107 van 1998), soos gewysig, onderneem word.

DEA Verwysingsnommer: Moet nog bevestig word

Aard en Ligging van Aktiwiteit: Die Aansoeker: EDF Renewables (Edms) Bpk, dien 'n aansoek in vir omgewingsmagtiging vir die elektriese netaansluiting en gepaardgaande infrastruktuur wat verband hou met die voorgestelde split van die gemagtigde WEF's, i.e. San Kraal Split 1 WEF; Phezukomoya Split 1 WEF; Hartebeesthoek East WEF en Hartebeesthoek West WEF. 'n Basiese assesseringsproses word gevolg omdat 'n nuwe gang voorgestel is, en part daarvan is buite die gemagtigde perseelgrense (van San Kraal en Phezukomoya) geleë is.

Die **Konsep EA Wysigingsverslag en Basiese Assesseringsproses** sal beskikbaar gestel word vir openbare oorweging en kommentaarlewing in September 2019 (presiese datum van beskikbaarheid sal bevestig word aan alle geregistreerde B&GPe deur kennisgewings) by die Noupoot Biblioteek; en op die webtuiste www.arcusconsulting.co.za.

Met verwysing na die voorgestelde ontwikkeling, indien u as 'n Belanghebbende en Geaffekteerde Party (B & GP) wil registreer, stuur asseblief u versoek om registrasie skriftelik na die onderstaande adres.

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Person / Persoon : Anesah Alwie

The Herald Classifieds

SPORT

<p>DEATHS</p> <p>ROBERTS. — Geoff. Your commitment and contribution to the Civil Engineering Profession to whom you so greatly contributed will ever be fondly remembered by those privileged to be associated with you. Rod and Keith.</p> <p>IN MEMORIAM</p> <p>ALLIN. — Ron. Sadly missed and always lovingly remembered by Cathy, Michael and Ian.</p> <p>FUNERAL NOTICES</p> <p>MVULA Zandisile Cyprian Sunrise: 31/10/78 Sunset: 25/08/2019</p> <p>The funeral service will take place on Saturday, 7 September 2019. Short service at 8.00am from home 17 Mhiza Street, KwaDwesi, proceeding to Pieter Rademeyer Hall, Algoa Park at 10.00am. Thence to Paapenkuis Cemetery. Deeply mourned by his wife, family and children. Safe in God's loving care. Memories last a lifetime.</p> <p>FORTUNE TELLING</p> <p>FORTUNE TELLER/TAROT READER let me assist you. Cleaning of houses and businesses. Call Christo (041) 368-4122</p> <p>FINANCE</p> <p>BRIDGING cash while waiting for pension / package payout (lump sum only). 071-433-0188. (041) 363-0245. Martin Credit Services, 79 2nd Ave, Newton Park.</p> <p>CHILDREN'S AMUSEMENT</p> <p>KIDZ Birthday party coming up? Pirates Cove Bootcamp. Ziplines, abseiling, swimming and much much more. Phone Pine Lodge (041) 583-4004.</p> <p>FURNITURE</p> <p>(041) 484-3231 • BIG BUCKS • Best prices paid. • We buy everything • Wayne 082-800-0674.</p> <p>(041) 484-3563 • HERBIE'S BUYERS AND SELLERS. WANTED Household and garage goods. Best prices. We collect Call Herbie 082-579-1541.</p> <p>KENNELS & PETS</p> <p>6 FISH TANKS with fish, heaters, pumps, filters, plants, gravel. Call 078-313-7555.</p>	<p>KENNELS & PETS</p> <p>TAME AFRICAN GREY PARROT with cage, R2 500. 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Interested parties are to forward a comprehensive CV together with a motivational letter with the Reference No. HR/ MAN/A2/2019 to landplaaties@omegasol.com</p> <p>No late applications will be considered. Short-listed applicants will be invited to an interview. If you have not received feedback within two weeks, please consider your application to be unsuccessful.</p> <p>Dynamic Company looking to employ a WOOD BORER INSPECTOR and FUMIGATOR. Applicants should be registered with the Department of Agriculture. Pest control Operator CV's to be emailed to cvapps2019@gmail.com</p>	<p>EMPLOYMENT OFFERED</p> <p>A dynamic and fast-paced drilling and blasting company on the KwaZulu-Natal coast requires the services of a qualified, hands-on QUANTITY SURVEYOR</p> <p>Key skills required:</p> <ul style="list-style-type: none"> Grade 12 at least a 3-year University of Technology diploma minimum 5 years working experience advanced MS-Office skills (non-negotiable) intermediate report writing skills ability to work under pressure proactive Driver's License essential <p>Responsibilities include, amongst others:</p> <ul style="list-style-type: none"> prepare tender and contract documents prepare price quotes for new work set-up a standard model that can be used for pricing new work implement systems for gathering relevant information on site and produce comprehensive reports for review by management report on drill hours, drilling efficiency, down time and other relevant metrics control all stages of projects within predetermined budgets compile weekly costings for all projects in progress monitor and keep track of project progress carry out monthly valuations of work in progress, including forecasting of final costs and sales provide advice to staff on commercial and contractual matters supply relevant information to the MD and FM for review at specific intervals assist MD and FM with a range of other duties as may be required from time to time. <p>Email full CV and ID, certified certificates / diploma to: payroll@bblast.co.za</p> <p>If you don't have a response within three weeks please consider your application unsuccessful.</p>	<p>HOUSES TO LET</p> <p>45 KIBSON AVENUE. 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● Dimitrov outplays Grand Slam master for spot in US Open semis

'Baby Fed' upsets Swiss namesake



BIGGEST WIN YET: Grigor Dimitrov, of Bulgaria, celebrates his victory over Roger Federer, of Switzerland, at the Arthur Ashe Stadium in New York City on Tuesday. Picture: TPN/GETTY IMAGES

Grigor Dimitrov stepped out of Roger Federer's shadow on Tuesday to claim a spot in the US Open semifinals with a shock 3-6-6-4 3-6-6-4 6-2 win over the wounded Swiss.

Coming into the US Open, the 78th ranked Dimitrov, dubbed "Baby Fed" because of the similarities between his game and Federer's, did not look much of a threat, posting just one win from his last eight matches.

But the Bulgarian, who had been ranked as high as number three, has found some form on the New York hardcourts and claimed his first win in eight meetings with the 20-time Grand Slam winner.

"Even if I would have gone two sets to love down, I wouldn't have given up," Dimitrov said.

"I would still stay on the court and just try to do as much as possible to make sure that I rattle him or put him off balance."

"I kept on pushing. I kept on believing."

Dimitrov will now face Daniil Medvedev on Friday for a place in the final, the Russian advancing to the last four with a 7-6(6) 6-3 3-6 6-1 win over another Swiss, Stan Wawrinka.

While not as crushing as his five-set loss to Novak Djokovic in the Wimbledon final, it was another bitterly disappointing missed opportunity for Federer to add to his Grand Slam haul.

After a sputtering start to the US Open that saw him drop the first set in his opening two matches in astonishingly submissive style, Federer had looked more like the silky

smooth Swiss maestro fans have come to expect.

He was virtually flawless in his next two contests, dropping just nine games in straight-sets wins, sparking a buzz about a possible Grand Slam Big Apple final showdown with old rival Rafa Nadal.

"Just disappointed it's over because I did feel like I was actually playing really well after a couple of rocky starts."

"It's just a missed opportunity to some extent that you're in the lead, you can get through, you have two days off after," Federer said.

"It was looking good. But you've got to take the losses. They're part of the game."

Federer looked razor sharp to start the match but was not able to maintain his usual level against the gritty Bulgarian.

The turning point came in the fourth set, Dimitrov fighting off five break points to win the set and level at 2-2.

"I was trying to stay in that game and make him stay on the court," Dimitrov said.

"After that he started slowing down."

"It's a best of five sets. Anything can happen."

And something did.

Before the start of the fifth set, Federer called for the trainer, who escorted him off the court for a medical time out to deal with a back problem.

When play resumed Dimitrov seized his chance, breaking Federer to open the fifth and then a second time with the Swiss unable to mount any defence as the Bulgarian went on to claim the biggest win of his career. — Reuters

Milestone for Serena with 100th victory

Serena Williams claimed her 100th win at the US Open in style on Tuesday, dismantling her quarterfinal opponent Wang Qiang 6-1 6-0 in a blistering 44-minute performance that ended any questions over a twisted ankle from the previous round.

"I never thought that I would get to 100," Williams said after the match, reflecting on the two decades she has spent playing at Flushing Meadows. "It's so special. I never want to let it go."

The eighth-seeded American and Chris Evert are the only two players to log at least 100 victories at the tournament.

Williams is now only one behind Evert's mark.

The 37-year-old Williams was dominant from the start, firing off 25 winners, compared with zero from 18th-seed Wang, and winning 90% of her first-serve points.

During her fourth-round match on Sunday, Williams slipped and fell while running to the net and twisted her right ankle but said on Tuesday she was feeling great.



"It feels good," Williams said of her performance.

"This is how hard I've been working. It feels like hard work pays off when that happens."

Williams pumped her fist in celebration after firing off a forehand winner in front of a roaring crowd to end the contest.

"I am who I am. I've always been the person that goes out there and roars and screams and complains and cries and fights," Williams said.

"I'm extremely passionate about what I do."

"Most people that love their jobs are passionate about what they do. That's just me."

She also praised the progress made in women's tennis over her career, calling it the "premier sport for women."

"It's the best work in the world that a woman can do, in my mind."

"I'm a little biased obviously, the 37-year-old said. "I feel like we fought so hard for so many years for so many different things."

Williams faces fifth-seed Elena Svitolina in the semifinals. — Reuters

Proteas to take on Roses

Four months after the end of the Netball World Cup in Liverpool, South Africa will face England in the SPAR Challenge in a three-match series in Cape Town from November 29 to December 1.

This will be the first time that the two sides meet following their battle for bronze at the Netball World Cup in July, which saw the Roses win.

"We are excited to be hosting England in November and cannot wait for the clash," Netball South Africa president Cecilia Molokwane said.

"We obviously don't want to allow them to beat us on our own turf and we have a home crowd advantage this time."

"These will definitely be an important few games for us as we are looking forward to the repeat of our last World Cup match against England."

For the Proteas this will be their chance to avenge their two losses at the hands of the Roses at the World Cup.

"I am very much looking forward to this series, it's definitely going to be an exciting few games to watch," Roses coach Jess Thirby said.

"The Proteas are a good team and proved that at the Vitality Netball World Cup."

LEGALS

<p>ARCUS</p> <p>NOTIFICATION OF EA AMENDMENT APPLICATION PROCESS: SAN KRAAL AND PHEZUKOMUYA WIND ENERGY FACILITY, NORTHERN AND EASTERN CAPE PROVINCE</p> <p>Notice is hereby given of a Public Participation Process (PPP) to be undertaken in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.</p> <p>DEA Reference Number: To Be Confirmed Order DEA Reference Number of the San Kraal WEF: 14/12/16/3/3/2/1029 and 14/12/16/3/3/2/1029/AM1 and the Phezukomoya WEF: 14/12/16/3/3/2/1028 and 14/12/16/3/3/2/1028/AM1</p> <p>Nature and Location of Activity: The Environmental Authorisation for the San Kraal Wind Energy Facility (WEF) and the Phezukomoya Wind Energy Facility (WEF) was granted by the Department of Environmental Affairs in June 2018. An EA Amendment application process for the proposed split of the San Kraal WEF and Phezukomoya WEF into four WEFs will be followed. Applications will be submitted to the Department of Environmental Affairs for the split of the authorised San Kraal WEF (DEA Ref. No. 14/12/16/3/3/2/1029 and 14/12/16/3/3/2/1029/AM1) (San Kraal) into two WEFs (namely San Kraal Split 1 and Hartebeesthoek East), and the Phezukomoya WEF (DEA Ref. No. 14/12/16/3/3/2/1028 and 14/12/16/3/3/2/1028/AM1) (Phezukomoya) into two WEFs (namely Phezukomoya Split 1 and Hartebeesthoek West).</p>	<p>edf renewables</p> <p>KENNISGEWING VAN EA WYSIGINGS AANSOEKPROSES: VOORGESTELDE SAN KRAAL EN PHEZUKOMUYA WINDKRAGAAANLEG, IN DIE NOORD-KAAP EN OOS-KAAP</p> <p>Kennis word hiermee gegee dat 'n Proses van Openbare Deelneme (PPP) ingevolge die Wet op Nasionale Omgewingsbestuur, 1998 (Wet Nr. 107 van 1998), soos gewysig, onderneem word.</p> <p>DEA Verwysingsnommer: Moet nog bevestig word Ouer DEA Verwysingsnommer of die San Kraal WEF: 14/12/16/3/3/2/1029 and 14/12/16/3/3/2/1029/AM1 en Phezukomoya WEF: 14/12/16/3/3/2/1028 and 14/12/16/3/3/2/1028/AM1</p> <p>Aard en Ligging van Aktiwiteit: Die Omgewingsmagtiging (EA) vir die San Kraal Windkragaanleg (WEF) en Phezukomoya Windkragaanleg (WEF) is in Junie 2018 deur die Departement van Omgewingsake (DEA) toegestaan. 'n EA wysigings aansoekproses vir die voorgestelde split van die San Kraal WEF en Phezukomoya WEF in vier WEFs sal gevolg word. Aansoeke sal by die Departement van Omgewingsake (DEA) ingedien word vir die split van die gemagtigde San Kraal WEF (DEA Verwysingsnommer: 14/12/16/3/3/2/1029 en 14/12/16/3/3/2/1029/AM1) (San Kraal) in twee WEFs (naamlik San Kraal Split 1 en Hartebeesthoek East), en die Phezukomoya WEF (DEA Verwysingsnommer: 14/12/16/3/3/2/1028 en 14/12/16/3/3/2/1028/AM1) (Phezukomoya) in twee WEFs (naamlik Phezukomoya Split 1 en Hartebeesthoek West).</p>
<p>NOTIFICATION OF BASIC ASSESSMENT PROCESS: PROPOSED SAN KRAAL AND PHEZUKOMUYA WIND ENERGY FACILITY, NORTHERN AND EASTERN CAPE PROVINCE</p> <p>Notice is hereby given of a Public Participation Process (PPP) to be undertaken in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.</p> <p>DEA Reference Number: To Be Confirmed Nature and Location of Activity: The Applicant, EDF Renewables (Pty) Ltd, is submitting an application for environmental authorisation for the electrical grid connection and associated infrastructure related to the proposed split of the authorised WEFs, i.e. San Kraal Split 1 WEF, Phezukomoya Split 1 WEF, Hartebeesthoek East WEF and Hartebeesthoek West WEF. A basic assessment process is being followed because a new corridor has been proposed, and part of the corridor is located outside the authorised site boundaries (of San Kraal and Phezukomoya).</p> <p>The Draft EA Amendment and Basic Assessment Reports will be made available for public review and comment in September 2019 (exact date of availability to be confirmed in notification to all registered I&APs) at the Noupout Library and on the website: www.arcusconsulting.co.za</p> <p>With reference to the proposed developments, if you wish to be registered as an Interested and Affected Party (I&AP), please send your request for registration in writing to the address below.</p>	<p>KENNISGEWING VAN DIE BASIESE ASSESSERINGSPROSES: VOORGESTELDE SAN KRAAL EN PHEZUKOMUYA WINDKRAGAAANLEG, IN DIE NOORD-KAAP EN OOS-KAAP</p> <p>Kennis word hiermee gegee dat 'n Proses van Openbare Deelneme (PPP) ingevolge die Wet op Nasionale Omgewingsbestuur, 1998 (Wet Nr. 107 van 1998), soos gewysig, onderneem word.</p> <p>DEA Verwysingsnommer: Moet nog bevestig word Aard en Ligging van Aktiwiteit: Die Aansoeker, EDF Renewables (Edms) Bpk, dien 'n aansoek in vir omgewingsmagtiging vir die elektriese netlaansluiting en gepaardgaande infrastruktuur wat verband hou met die voorgestelde split van die gemagtigde WEFs, i.e. San Kraal Split 1 WEF, Phezukomoya Split 1 WEF, Hartebeesthoek East WEF en Hartebeesthoek West WEF. 'n Basiese assesseringsproses word gevolg omdat 'n nuwe gang voorgestel is, en part daarvan is buite die gemagtigde perseelgrense (van San Kraal en Phezukomoya) geleë is.</p> <p>Die Konsep EA Wysigingsverslag en Basiese Assesseringsproses sal beskikbaar gestel word vir openbare oewerleging en kommentaarlewing in September 2019 (presiese datum van beskikbaarheid sal bevestig word aan alle geregistreerde B&GPs deur kennisgewings) by die Noupout Biblioteek; en op die webtuiste www.arcusconsulting.co.za.</p> <p>Met verwysing na die voorgestelde ontwikkelings, indien u as 'n Belanghebbende en Geaffecteerde Party (B & GP) wil registreer, stuur asseblief u versoek om registrasie skriftelik na die onderstaande adres.</p>

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